

## CALIFORNIA COASTAL COMMISSION

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June 28, 2007

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the staff report addendum.](#)

TO: Commissioners and Interested Parties

FROM: Peter Douglas, Executive Director  
Charles Lester, Deputy Director  
Michael Endicott, North Central Coast District Supervisor  
YinLan Zhang, Coastal Program Analyst

SUBJECT: **(1) San Mateo County Resource Conservation District Public Works Plan No. 2-07-004** to improve fish passage through culvert removal and replacement by a clear span bridge on Frenchmen's Creek, **(2) Notice of Impending Development (NOID) NOID No. 1-7 for the Specific Public Works Project**, in the City of Half Moon Bay and Unincorporated San Mateo County.

### EXECUTIVE SUMMARY

The San Mateo County Resources Conservation District (SMCRCD) is proposing a Public Works Plan (PWP) and corresponding Notice of Impending Development (NOID) for a specific public works project (Specific Project) pursuant to the proposed PWP to improve fish passage on Frenchman's Creek, located in the coastal development permit jurisdictions of both the City of Half Moon Bay and San Mateo County. This is a project-driven PWP, and as such, the Specific Project under the PWP, comprises the entire scope of development that would be authorized under the PWP.

The PWP/Specific Project includes the removal of a culvert crossing 2.3 miles up Frenchman's Creek, replacement of the culvert crossing with a clear-span bridge, placement of eight boulder weirs in the stream channel, grading and contouring of the stream channel and bank to stabilize the grade after the culvert removal, and revegetation of the project site with native riparian plants after project completion.

The existing culvert on Frenchman's Creek is perched 9 feet above the streambed at the outlet, which effectively prevents migration of all adult and juvenile California Central Coast steelhead, a federally threatened species. The proposed PWP/Specific Project would remove the present barrier and restore access for steelhead and other fish to quality spawning and rearing habitat in the upper portion of Frenchman's Creek. The proposed PWP/Specific Project is a part of California Department of Fish and Game's (CDFG) Fisheries Restoration Grant Program and has been supported with additional funding

from the National Oceanic and Atmospheric Administration (NOAA) and the Coastal Conservancy.

The proposed PWP/Specific Project would be carried out in a sensitive stream and riparian habitat that support a number of rare, threatened and endangered species, including the steelhead, San Francisco garter snake, California red-legged frog, western pond turtle, San Francisco dusky-footed woodrat, and migratory birds. While the proposed development would not result in permanent destruction or displacement of sensitive habitat, potential adverse impacts could result from construction activities. Due to the sensitivity of the site, the applicant is proposing numerous measures sanctioned by National Marine Fisheries Service (NMFS), the U.S. Fish and Wildlife Service (USFWS), and CDFG to reduce potential adverse impacts to less than significant levels. However, the proposed mitigation measures do not comprehensively address potential adverse impacts to sensitive habitats and species on site, especially with respect to nesting birds and the San Francisco dusky-footed woodrat.

Therefore, staff is recommending denial of the proposed PWP as submitted followed by approval with four modifications. Modifications provide for the protection of sensitive habitats and species, specifically, nesting birds and the San Francisco dusky-footed woodrat, and ensure that the proposed PWP would not result in significant adverse impacts to the sensitive habitat and species in the project area. Staff is further recommending that the Commission determine that the NOID for the Specific Project is consistent with PWP with special conditions regarding protection of sensitive habitats and species.

**Motions and Resolutions for Public Works Plan and NOID Commence on Pages 4 and 5, respectively.**

***Staff Note***

Pursuant to Section 13549 of the Commission's Administrative Regulations, a NOID shall be deemed filed when all necessary supporting information has been received. In this case, because the NOID is for a Specific Project identified in a pending PWP that the Commission has not yet acted on, there is insufficient supporting information to determine whether the proposed development is consistent with the certified PWP. Therefore, the NOID is deemed incomplete at this time and cannot be filed until the Public Works Plan has been approved by the Commission.

**STANDARD OF REVIEW**

Section 30605 of the Coastal Act states in relevant part:

*If any...plan for public works is submitted after the certification of local coastal programs, any such plan shall be approved by the Commission only if it finds, after full consultation with the affected local governments, that the proposed plan for public works*

*is in conformity with certified local coastal programs in jurisdictions affected by the proposed public works...*

Frechman's Creek serves as the boundary between the City of Half Moon Bay and unincorporated San Mateo County. Since the project involves work on both sides of the creek, it is bisected by the boundary between the coastal development permit jurisdictions of the City and County. Therefore, the certified LCPs of both the City and the County serve as the standard of review for the portion of the proposed public works plan in the respective local government jurisdictions.

### **PUBLIC PARTICIPATION**

Section 30503 of the Coastal Act requires public input in preparation, approval, certification and amendment of any Public Works Plan. The SMRCD held a public hearing and approved the proposed PWP/Specific Project December 14, 2006. The hearing was duly noticed to the public consistent with Sections 13552 and 13551 of the California Code of Regulations. Pursuant to Section 30606 of the Coastal Act, the NOID has been distributed to all known interested parties.

### **LOCAL GOVERNMENT CONSULTATION**

Pursuant to Section 13357 of the California Code of Regulations, which stipulates that review of public works plan after certification of LCPs must be undertaken after consultation with affected local governments, the entire public works plan application along with the included environmental documents were sent to the City of Half Moon Bay and San Mateo County prior to staff review of the proposed public works plan.

### **AVAILABILITY OF ENVIRONMENTAL DOCUMENTS**

All environmental information relied on by the Commission and its staff, including the Mitigated Negative Declaration, biological reports, and the proposed PWP and NOID for the Specific Project is available for review at the below-referenced San Francisco Office of the California Coastal Commission.

### **ADDITIONAL INFORMATION**

For further information about this report, please contact YinLan Zhang, Coastal Planner, at the North Central Coast District Office of the Coastal Commission, North Central Coast District, 45 Fremont St., Ste. 2000, San Francisco, CA 94105; telephone number (415) 904-5260.

### **Exhibits**

1. Project Location Map
2. Project Photos
3. Project Plans

4. NOID
5. Amended Project Description
6. Engineering Report
7. Site Assessment for San Francisco Dusky-Footed Woodrat
8. Rare Plant Survey Report
9. CDFG 1602 Streambed Alteration Agreement No. 1600-2007-0096-3
10. NMFS Biological Opinion Reference No. SWR200603088
11. USFWS Biological Opinion Reference No. 1-1-03-F-273

## **1.0 STAFF RECOMMENDATION**

### **A. DENIAL OF PUBLIC WORKS PLAN AS SUBMITTED**

**MOTION:** *I move that the Commission certify the San Mateo County Resource Conservation District PWP 2-07-004 as submitted.*

#### **STAFF RECOMMENDATION FOR DENIAL OF PUBLIC WORKS PLAN:**

Staff recommends a **NO** vote. Failure of this motion will result in denial of the Public Works Plan as submitted and the adoption of the following resolution and findings. The motion to certify passes only by an affirmative vote of a majority of the appointed Commissioners.

#### **RESOLUTION I:**

The Commission hereby denies certification of the San Mateo County Resource Conservation District Public Works Plan and adopts the findings stated below on the grounds that the Plan does not conform with the San Mateo County and City of Half Moon Bay certified local coastal programs. Certification of the Plan would not comply with the California Environmental Quality Act because there are feasible alternatives or feasible mitigation measures that would substantially lessen the significant adverse effects that the approval of the Plan would have on the environment.

### **B. CERTIFICATION OF PUBLIC WORKS PLAN WITH MODIFICATIONS**

**MOTION:** *I move that the Commission certify the San Mateo County Resource Conservation District PWP 2-07-004 if modified as suggested in the staff report.*

#### **STAFF RECOMMENDATION FOR CERTIFICATION OF PUBLIC WORKS PLAN WITH MODIFICATIONS:**

Staff recommends a **YES** vote. Passage of this motion will result in certification of the Public Works Plan as modified. The motion to certify passes only by affirmative vote of a majority of the appointed Commissioners.



## **RESOLUTION II:**

The Commission hereby certifies the San Mateo County Resource Conservation District Public Works Plan as modified and adopts the findings stated below on the grounds that the Plan as modified **conforms with the San Mateo County and City of Half Moon Bay's certified local coastal programs.** Certification of the *Plan* as modified complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the Plan on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the Plan on the environment.

### **Modification No. 1**

All development subject to PWP-2-07-004 shall be undertaken in accordance with Mitigation Measure Nos. 1-74 listed in Section 2.3 below.

### **Modification No. 2**

All development subject to PWP-2-07-004 shall avoid impacts to nesting birds by ensuring that no construction activities, including grading or placement of equipment, occur on or before August 31. For construction activities occurring after August 31, a preconstruction survey shall be undertaken for any nesting birds or raptors within 100 feet of construction activities within 30 days prior to commencement of construction. If active nests are found, no grading or construction work shall occur until all young have fledged.

### **Modification No. 3**

All development subject to PWP-2-07-004 shall avoid impacts to the San Francisco dusky-footed woodrat. Prior to commencement of construction, including grading or placement of equipment, a 50-foot buffer shall be established around the active stick nests adjacent to the project site. Allowable activities within the 50-foot buffer shall be restricted to hand removal of vegetation as deemed necessary by CDFG and USFWS to allow for the adequate biological monitoring of the San Francisco garter snake as required in Mitigation No. 11. Any other activities aside from limited hand removal of vegetation shall be prohibited. A qualified biological monitor shall be present at the site during all grading and construction activities to ensure that the San Francisco dusky-footed woodrat is not harmed.

### **Modification No. 4**

Prior to Commencement of Construction, all development subject to PWP-2-07-004 shall obtain all other agency approvals as necessary.

## **C. APPROVAL OF NOTICE OF IMPENDING DEVELOPMENT FOR SPECIFIC PUBLIC WORKS PLAN PROJECT WITH CONDITIONS**

**MOTION:** *I move that the Commission approve the San Mateo County Resource Conservation District Notice of Impending Development 1-07 as conditioned in the staff report.*

**STAFF RECOMMENDATION FOR APPROVAL OF PUBLIC WORKS  
PROJECT WITH CONDITIONS**

Staff recommends a **YES** vote. Passage of this motion will result in certification of the Public Works Plan as modified. The motion to certify passes only by affirmative vote of a majority of the Commissioners present.

**RESOLUTION III:**

The Commission hereby approves the Notice of Impending Development for specific project proposed to be undertaken by the San Mateo County Resource Conservation District as conditioned and adopts the findings stated below on the grounds that the specific project as conditioned conforms with the certified public works plan, as modified, and either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the specific project on the environment, or 2) there are no further feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the specific project on the environment.

**STANDARD CONDITIONS**

Standard Conditions for San Mateo County Resource Conservation District NOID 1-07:

1. **Notice of Receipt and Acknowledgment.** This NOID approval is not valid and development shall not commence until a copy of the project authorization, signed by the applicant or authorized agent, acknowledging receipt of the project authorization and acceptance of the terms and conditions, is returned to the Commission office.
2. **Expiration.** If development has not commenced, the NOID approval will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the Specific Public Works Plan Project approval must be made prior to the expiration date.
3. **Interpretation.** Any questions of intent or interpretation of any condition will be resolved by the Executive Director of the Commission.
4. **Assignment.** The NOID approval may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.
5. **Terms and Conditions Run with the Land.** These terms and conditions shall be perpetual, and it is the intention of the Commission and the applicant to bind all future owners and possessors of the subject property to the terms and conditions.

## **SPECIAL CONDITIONS**

Special Conditions for San Mateo County Resource Conservation District NOID 1-07:

1. **Mitigation Measures.** The applicant shall undertake all stages of development in accordance with Mitigation Measure Nos. 1-74 listed in Section 2.3 below.
2. **Nesting Birds.**
  - a. The applicant shall not begin any construction activities, including grading or placement of equipment, on or prior to August 31.
  - b. For construction activities occurring after August 31, a preconstruction survey shall be carried out for any nesting birds or raptors within 100 feet of construction activities within 30 days prior to commencement of construction.
  - c. If active nests are found, no grading or construction work shall occur until all young have fledged.
3. **San Francisco Dusky-footed Woodrat**
  - a. A 50-foot buffers shall be delineated around the active stick nests adjacent to the construction site.
  - b. Allowable activities within the 50-foot buffer shall be restricted to hand removal of vegetation to as deemed necessary by CDFG and USFWS to ensure conditions that allow for the adequate biological monitoring of the San Francisco garter snake as required in Mitigation No 11.
  - c. Any other activities aside from those enumerated in Special Condition 3b shall be prohibited.
  - d. A qualified biological monitor shall be present at the site during all grading and construction activities to ensure that the San Francisco dusky-footed woodrat is not harmed.
4. **Other Agency Approvals.** PRIOR TO COMMENCEMENT OF CONSTRUCTION, the applicant shall obtain authorization from the USFWS to carry out the project in compliance with the laws and regulations of the federal Endangered Species Act.

## **2.0 FINDINGS AND DECLARATIONS**

The Commission hereby finds and declares as follows:

## **2.1 Project Background and Site Description**

Frenchman's Creek is a perennial stream located approximately three miles north of the City of Half Moon Bay in San Mateo County, California. At approximately 2.3 miles up Frenchman's Creek a culvert crossing was placed in the channel to connect the private, unpaved road used by agricultural operators to access the area (Exhibit 1). Lands on both side of the creek within the vicinity of the project site are currently in active agricultural production for vegetables and flowers. The stream bank adjacent to the culvert crossing is relatively steep and covered with thick vegetation where the overstory is dominated by red alder trees and the understory species include California blackberry, stinging nettle, and cape ivy.

The 3-foot diameter culvert was originally placed at grade and fill material was placed over the culvert to facilitate vehicle crossing. However, over the years the culvert has caused a significant down-cut of the streambed at the outlet, resulting in a nine-foot vertical difference between the culvert and the streambed at the outlet, which is considered by CDFG to be a total barrier to migration of both steelhead adults and juveniles (Exhibit 2). As a result, access to the upper 2.1 miles of the creek, the most valuable spawning and rearing habitat within the stream system, has been eliminated. Removing the culvert would restore access to these habitats in the upper portion of the creek for steelhead and other fish.

Willow and alder trees provide bank stability and solar protection for the full length of the Frenchman's Creek channel. The stream has historically supported a sustainable native steelhead population and also contains a population of non-native brown trout. Rare and endangered species that use the stream and riparian habitat include the California Central Coast (CCC) steelhead, San Francisco garter snake, California red-legged frog, and western pond turtle, San Francisco dusky-footed woodrat, and various species of birds.

Land uses in the Frenchman's Creek watershed include public recreation at Half Moon Bay State Beach, day-rental equestrian facilities near the Highway 1 crossing, some residential subdivision in the lower reaches, and row crop agriculture in the middle reach. The upper portion of the watershed remains undisturbed, and, as such, provides valuable steelhead spawning and rearing habitat. About 4.4 miles up the creek, a waterfall provides the final natural barrier to migrating fish.

The Coastside Creek Restoration Association initially identified the project and brought it to the attention of the SMCRCDD, the San Mateo County Fish and Wildlife Advisory Committee and CDFG. The proposed development has received funding from NOAA, CDFG's Fisheries Restoration Grant Program, and the Coastal Conservancy.

## **2.2 Public Works Plan and Specific Project Description**

The SMCRCDD Public Works Plan and Specific Project include the removal of an existing perched culvert and placement of a 12 feet wide and 65 feet long, clear-span bridge and eight boulder cross-vane weirs in the stream channel to improve passage for the federally threatened CCC steelhead. Although some public works plans cover several projects, in this case, the Specific Project comprises the entire scope of the development that would be authorized under

the public works plan. Though the present PWP is project-driven, after its certification, it will continue to apply to the subject site and development in the future. Future development at the project site would require an amendment to the certified PWP.

The SMCRCDD's proposed PWP/Specific Project has the following general components: installation of temporary water diversion system to dewater the section of the stream channel where heavy equipment would be working, removal of the existing culvert, grading of the channel and stream bank, installation of the boulder weirs, placement of riprap to protect the toe and slope under the new bridge, construction of the clear span bridge, and revegetation of the disturbed areas. Table 1 below summarizes the excavation and fill quantities and the areas of disturbance proposed by the applicant.

**Table 1. Summary of excavation, fill, and areas of disturbance proposed by the San Mateo County Resource Conservation District for Fish Passage Improvement Project on Frenchman's Creek.**

Linear feet of stream restored:	250
Cubic yards of excavation:	682.57
Cubic yards of imported fill:	632.33
Total area of disturbance not including soil dispersal and revegetation:	0.208 acres
Total area of disturbance including soil dispersal and revegetation:	0.29 acres

The staging area for the proposed development would be located approximately 100 feet away from the stream and riparian areas, on the existing unpaved road and agricultural fields.

Excess soil would remain on site and be reseeded with native vegetation. Excess cut material from site grading (approximately 51.24 cubic yards) would be distributed across the four identified areas adjacent to the existing unpaved road. The distributed soils would be leveled to a depth of 8 inches and reseeded with native vegetation. Any additional debris from the project such as the would be removed culvert and invasive vegetation would be disposed of at the Ox Mountain Landfill in the City of Half Moon Bay.

The proposed construction schedule is approximately two to three weeks, with one additional day of work to place the railcar bridge after the cement abutments have been cured and set after 21 days.

The following is a more detailed description of the specific components of the proposed PWP/Specific Project.

### Dewatering System

Since Frenchman's Creek is a perennial stream, a temporary water diversion system would be necessary to dewater the project site to facilitate in-stream construction and to minimize potential impacts to water quality.

First, fish exclusion fencing would be installed above the project reach. Fish and other aquatic organisms found in the project area would be relocated by a qualified biologist according to agency protocols. A sandbag cofferdam would be constructed approximately 50 feet upstream of the project area. Sandbags and plastic sheeting would be placed by hand into the channel. Heavy equipment would not be used to install the coffer dam. Stream flow would be conveyed through an approximately 400-foot long, 12-inch diameter gravity flow pipe which would be laid on the streambed, the outlet of which would be approximately 100 feet downstream from the project reach. A pump would be placed behind the coffer dam and would be turned on only when necessary to maintain water level behind the dam to one foot and to prevent water from spilling over the dam. Intake for the pumps would be fitted with screens to avoid entrainment of juvenile fish and tadpoles. When the pump is on, water would be conveyed through a 6 inch PVC pipe approximately 100 feet down stream of the project reach. The proposed development would be undertaken during the period of the lowest stream flow and the stream flow diversion would be limited to the minimum amount of time necessary to complete work in the stream channel.

### Exclusionary Fencing and Hand Clearing

Prior to any heavy equipment entering the site and construction or hand clearing of vegetation, exclusionary fencing would be set up to delineate the boundary of the project area. Once the fence is set up work crews from the California Conservation Corps would use hand tools to grub and clear the enclosed site of vegetation. All of this activity would be closely monitored by a qualified biologist to prevent the accidental take of sensitive wildlife species potentially on the site.

### Culvert Removal

To remove the culvert, an excavator working from the existing road crossing above the culvert would remove the soil envelope around the culvert. The soil would be stockpiled in an upland site over one hundred feet from the stream. The soil would be distributed on site, adjacent to the unpaved road once construction is complete and would be revegetated with native vegetation. Once the culvert is fully exposed it would be removed in pieces with a backhoe working from the top of the bank.

### Rough Grading

After the culvert has been removed the new channel alignment would be graded. During this activity a temporary access dirt ramp would be installed that would provide access to the channel by an excavator and backhoe. The temporary ramp would be approximately 12 feet wide and 40 feet long and would be constructed of compacted native soil.

The grading would occur over an approximately 250 feet reach of the stream. The channel would be graded to an approximately 4% slope over the project reach. The restored channel would include a low flow channel and approximate bankfull width of 13 feet and a bankfull depth of 2 feet.

### Installation of Boulder Weirs

Once the channel has been graded and the new alignment is completed, eight one-foot high boulder weirs would be placed in the stream's low flow channel at approximately 30-foot intervals to re-establish the grade of the channel and to reduce the migration of head cuts within the restoration reach. The boulder step pool weirs are designed to stabilize the grade of the streambed, provide pool habitat for fish, and minimize risks of long term erosion upstream.

The boulder weirs would be installed once the grading of the channel is completed. A backhoe would then be used to excavate the streambed and install the rock weirs on top of soil cement foundations. The boulder weirs would be across the low flow channel at 30-foot intervals and at heights not to exceed one-foot. Once the weirs are in place, they would be set, grading would be finished, and the channel would be backfilled with river stone.

Purpose of the grading and placement of the boulder weirs is to stabilize the channel and prevent erosion upstream once the culvert is removed. Currently, there is a 9-foot vertical difference between the stream channel upstream and downstream of the culvert, which represents a 25% slope over the stretch of the stream channel affected by the existing culvert. This steep gradient is caused by the culvert, which has set the grade on the upstream side to a fixed elevation and allowed for a severe downcut at the outlet. Once the culvert is removed, the difference in the grade of the channel would need to be stabilized through grading and placement of the boulder weirs. Without the grading, re-alignment of the channel, and installation of the boulder weirs, the stream would not be restored to a stable channel configuration and would cause severe erosion and bank instability, which could impact restoration efforts in the stream, create hazardous conditions, and cause sedimentation of the stream. The design parameters for the boulder weirs and grading of the channel have been developed according to NOAA standards to ensure fish passage 99 percent of the time (Exhibit 6).

### Bank Stabilization Measures

The majority of the banks along the restored channel would be stabilized using organic fiber erosion control blankets and riparian vegetation. Under the proposed new clear span bridge a limited amount of riprap is proposed since shade from the bridge would limit the establishment of vegetation. Approximately 16 lineal feet by 6 feet high rip rap bank stabilization measures would be installed on each side of the bridge. The riprap would vary in size from 12 to 24 inches in diameter. It would be installed using a backhoe and manual labor to set the stones in a secure position. It is anticipated that the riprap would be in place for the life of the project (excess of 50 years). The riprap has been sized to resist mobilization from peak flows resulting from the 100-year event.

### Placement of the Clear Span Bridge

After the channel has been restored, the new bridge abutments and railcar bridge would be constructed. Two abutments for the bridge would be constructed on both sides of the channel and a backhoe would be used to excavate the holes for the abutments. The abutments would be spread-footing foundations that would be board-formed, cast in place reinforced concrete. Approximately 10 cubic yards would be excavated for the abutments and no fill would be required because they would be poured to grade. After the abutments have cured for 21 days, a railcar would be placed by crane and bolted to the abutment.

### Revegetation and Monitoring

The SMCRCDD is proposing to re-plant the site with native riparian species in accordance with the revegetation and monitoring plan (Exhibit 3). All invasive plants including cape ivy, poison hemlock and eucalyptus seedlings would be removed prior to revegetation. The planted native vegetation would be monitored annually for three years, to ensure 80% survival of planted native vegetation. During this period all dead plants would be replaced annually. Success would be based on 80% survival after the third year. If 80% survival is not met, annual monitoring and replanting would continue in two year increments thereafter until 80% survival is met.

## **2.3 On Site Biological Resources, Potential Impacts, and Proposed Mitigation Measures**

The SMCRCDD is proposing to carry out the PWP/Specific Project in a sensitive riparian and perennial stream habitat. The project area consists of approximately 0.29 acres of riparian and stream habitat that support Central California Coast steelhead (federally threatened), California red-legged frog (federally threatened, California species of special concern), San Francisco garter snake (federally and state endangered, fully protected species under California Endangered Species Act), western pond turtle (California species of special concern), and the San Francisco dusky-footed woodrat (California species of special concern), and migratory birds protected under the Migratory Bird Treaty Act.

A rare plant habitat assessment and survey of the proposed project area was conducted by a qualified botanist under contract with the CDFG on May 29, 2007. No sensitive plant species, sensitive plant habitat, or sensitive plant communities were found in the area, and no further surveys were recommended (Exhibit 8).

The proposed PWP/Specific Project aims to ultimately benefit the CCC steelhead by removing a migration barrier on Frenchman's Creek. The proposed development would also benefit the stream and riparian system by removing a culvert crossing that has channelized the stream, severely altering its flow and natural morphology, and restoring the stream to a more natural configuration. The riparian habitat would also benefit from the applicant's proposal to eliminate invasive species and revegetating the project area with native plant species. The proposed PWP/Specific Project would not result in any permanent displacement or destruction of the sensitive habitat on site as the clear-span bridge would be in approximately the same footprint as the existing culvert crossing, with the exception that the stream would be able to flow freely under the bridge which is designed above the 100-year storm event flood level, instead of being



impeded by the culvert crossing. In addition, vegetation removed to facilitate construction and biological monitoring for California red-legged frogs and San Francisco garter snakes would be replanted with native riparian species. However, despite these positive effects of the proposed development, significant adverse impacts to water quality and sensitive species could result from the construction process as operation of heavy equipment, grading, and excavation activities could cause increased sedimentation of the stream, introduction of hazardous chemicals into the water, harm or mortality of sensitive species, and degradation of the species habitat.

SMRCD has incorporated the mitigation measures listed below in its proposed PWP/Specific Project to reduce the potential adverse impacts to sensitive habitats and species in the stream and riparian habitat. The mitigation measures are either (1) directly proposed by the applicant (2) required by the programmatic Mitigated Negative Declaration that is being relied upon by the applicant to satisfy the requirements of the California Environmental Quality Act (CEQA), (3) required as conditions of approval of the U.S. Army Corps of Engineers regional permit covering the project; (4) required as conditions of the California Department of Fish & Game Streambed Alteration Agreement; or (5) recommended in the National Marine Fisheries Service and the U.S. Fish and Wildlife Service Endangered Species Act Section 7 Biological Opinions for the CCC steelhead and California red-legged frog. The mitigation measures proposed by SMCRCD for the San Francisco garter snake were developed by CDFG in the programmatic Mitigated Negative Declaration and in consultation with USFWS staff biologist.

Avoidance and Minimization Measures for Steelhead (*Oncorhynchus mykiss*):

1. Project work within the wetted stream shall be limited to the period between June 15 and November 1, or the first significant fall rainfall. This is to take advantage of low stream flows and to avoid the spawning and egg/alevin incubation period of salmon and steelhead.
2. No heavy equipment shall operate in the live stream, except as may be necessary to construct coffer dams to divert stream flow and isolate the work site.
3. Work must be performed in isolation from the flowing stream. If there is any flow when the work is done, the operator shall construct coffer dams upstream of the excavation site and divert all flow from upstream of the upstream dam to downstream of the work site. The coffer dams may be constructed with clean river gravel or sand bags, and may be sealed with sheet plastic. Sand bags and any sheet plastic shall be removed from the stream upon project completion. Clean river gravel may be left in the stream, but the coffer dams must be breached to return the stream flow to its natural channel.
4. If it is necessary to divert flow around the work site, either by pump or by gravity flow, the suction end of the intake pipe shall be fitted with fish screens meeting CDFG and NMFS criteria to prevent entrainment or impingement of small fish. Any turbid water pumped from the work site itself to maintain it in a dewatered state shall be disposed of in an upland location where it will not drain directly into any stream channel.

5. Any disturbed banks shall be fully restored upon completion of construction. Revegetation shall be done using native species. Planting techniques can include seed casting, hydroseeding, or live planting methods using the techniques in Part XI of the *California Salmonid Stream Habitat Restoration Manual*.
6. Suitable large woody debris removed from fish passage barriers that is not used for habitat enhancement, shall be left within the riparian zone so as to provide a source for future recruitment of wood into the stream.
7. Measures shall be taken to minimize harm and mortality to listed salmonids resulting from fish relocation and dewatering activities:
  - a) Fish relocation and dewatering activities shall only occur between June 15 and November 1 of each year.
  - b) SMRCD shall minimize the amount of wetted stream channel that is dewatered at each individual project site to the fullest extent possible.
  - c) All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act, June 2000.
8. If for some reason these mitigation measures cannot be implemented, or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to anadromous salmonids or their habitat, then activity at that work site will be discontinued.

Avoidance and Minimization for San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*):

9. All work must be observed by a qualified biological monitor. The monitor must be approved by CDFG and the USFWS. If work will take place at more than one location, each area must have at least one monitor. The standard that is to be met is that the number of monitors present in all parts of each work area must be sufficient to ensure that all of each area can be observed.
10. Prior to the commencement of work each day, the monitor or monitors must survey the work area to ensure no SFGS or CRLF is in the vicinity.
11. All vegetation must be removed by hand. Chain saws are allowed, but no machinery that disturbs the ground surface or travels along the ground surface may be used until enough vegetation has been removed so that the ground is clearly visible.
12. Surface streets and paved areas shall be used to the greatest extent practicable for staging, storage and parking. If not practicable, a staging area should be selected and cleared under the supervision of the monitor or monitors. All off street parking, storage or staging shall be confined to this area.

13. Any vehicle or material that has been stationary for more than 15 minutes anywhere in the work area must be checked, by the monitor for the presence of SFGS or CRLF prior to it moving.
14. All workers on the job, including subs and new workers, must receive training from one of the monitors. The training should identify the special status species with the potential to be present, tell how to recognize them and what to do if they are sighted. All snake sightings should be considered SFGS until confirmed one way or the other by the monitor. All workers should clearly understand what actions are to be taken if a snake is found in the work area.
15. If a snake is sighted in the work area, any actions that could result in harm to the snake must cease until the monitor identifies the snake. If the snake is not a SFGS, all work can recommence once the snake is removed from the area. If the snake is a SFGS, all work on the project must cease until CDFG and USFWS are contacted.

Avoidance and Minimization Measures for California red-legged frog (*Rana aurora draytonii*):

16. At least 15 days prior to the onset of activities, the SMRCD will submit the names(s) and credentials of biologists who would conduct activities specified in the following measures. No project activities will begin until the SMRCD has received written approval from the USFWS that the biologist(s) is qualified to conduct the work.
17. A USFWS-approved biologist will survey the work site at least two weeks before the onset of activities. If red-legged frogs are found in the project area and these individuals are likely to be killed or injured by work activities, the USFWS-approved biologist will allow sufficient time to move them from the site before work activities resume. Only USFWS-approved biologists will participate in activities with the capture, handling, and monitoring of red-legged frogs.
18. Before any construction activities begin on a project, a USFWS-approved biologist will conduct a training session for all construction personnel. At a minimum, the training shall include a description of the red-legged frog and its habitat, the importance of the red-legged frog and its habitat, the general measures that are being implemented to conserve the red-legged frog as they relate to the project, and the boundaries within which the project may be accomplished. Brochures, books and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.
19. A USFWS-approved biologist shall be present at the work site until such time as removal of red-legged frogs, instruction of workers, and habitat disturbance has been completed. The USFWS-approved biologist shall have the authority to halt any action that might result in impacts that exceed the levels anticipated by the USFWS during review of the proposed action. If work is stopped, the Corps and USFWS shall be notified immediately by the USFWS-approved biologist or on-site biological monitor.

20. During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.
21. A USFWS-approved biologist will ensure that the spread or introduction of invasive exotic plant species is avoided to the maximum extent possible.
22. Areas disturbed by project activities will be restored and planted with native plants.
23. The number of access routes, number and size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal. Routes and boundaries will be clearly demarcated.
24. Ground disturbing activities in potential red-legged frog habitat will be restricted to the period between July 1 and October 15.
25. If a work site is to be temporarily dewatered by pumping, intakes will be completely screened with wire mesh not larger than 0.2 inch to prevent red-legged frogs from entering the pump system. Water will be released or pumped downstream at an appropriate rate to maintain down stream flows during construction activities and reduce the creation of ponded water. Upon completion of construction activities, any barriers to flow will be removed in a manner that would allow flow to resume with the least disturbance to the substrate.
26. A USFWS approved biologist will permanently remove from the project area, any individuals of exotic species, such as bullfrogs (*Rana catesbiana*), centrarchid fishes, and non-native crayfish to the maximum extent possible. The biologist will have the responsibility to ensure that their activities are in compliance with the Fish and Game Code.
27. Prior to the onset of any project-related activities, the approved biologist must identify appropriate areas to receive red-legged frog adults and tadpoles from the project areas. These areas must be in proximity to the capture site, contain suitable habitat, not be affected by project activities, and be free of exotic predatory species (i.e. bullfrogs, crayfish) to the best of the approved biologist's knowledge.
28. If red-legged frogs are found and these individuals are likely to be killed or injured by work activities, the USFWS-approved biologists must be allowed sufficient time to move them from the site before work activities resume. The USFWS-approved biologist must relocate the red-legged frogs the shortest distance possible to one of the predetermined areas. The USFWS -approved biologist must maintain detailed records of any individuals that are moved (e.g., size, coloration, any distinguishing features, photographs (digital preferred) to assist in determining whether translocated animals are returning to the point of capture. Only red-legged frogs that are at risk of injury or death by project activities may be moved.

29. Biologists who handle red-legged frogs must ensure that their activities do not transmit diseases. To ensure that diseases are not conveyed between worksites by the USFWS-approved biologist, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force must be followed at all times.

Avoidance and Minimization Measure for Impact to Western Pond Turtle:

30. A qualified biologist shall survey the work site at least two weeks before the onset of activities. Any turtle found in the project area shall be moved to an area outside of the project area in the direction that the turtle was originally traveling.
31. The SMCRCDD shall install exclusion fencing around the project areas to ensure that turtle does not enter the project site.
32. A biological monitor shall be present at the work site through out the duration of project activities.
33. Any turtles found within the exclusion fencing shall be moved to a safe location outside of the work site in the direction that the turtle was originally traveling by a qualified biologist.

Avoidance and Minimization Measures for Impact to Water Quality:

34. Temporary stockpiling of all excavated materials shall be located at a minimum of 100 feet away from the riparian habitat
35. All exposed soil surfaces will be covered with a natural fiber and degradable erosion control blanket. The erosion control blanket will extend from the top to bottom of the slope.
36. If it is necessary to divert water around the work site, unimpeded by flows shall be maintained at all times to maintain downstream water quality
37. When a dam (any artificial obstruction) is being constructed, maintained, or placed in operation, sufficient water shall at all times be allowed to pass downstream to maintain fishlife below the dam pursuant to Fish and Game Code Section 5837.
38. Debris, soil, silt, bark, rubbish, creosote-treated wood, raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances which could be hazardous to aquatic life, resulting from project related activities, shall be prevented from contaminating the soil and/or entering the waters of the state. Any of these materials, placed within or where they way enter a stream or lake by Operator or any party working under contract, or with the permission of the Operator, shall be removed immediately.

39. Effective erosion control measures shall be in-place at all times during construction. Construction with the 5-year flood plain will not begin until all temporary erosion controls (e.g. straw bales or silt fences that are effectively keyed-in) are in-place down slope of project activities within the riparian area.
40. Adequate erosion control supplies shall be kept at all restoration sites to ensure sediment is kept out of water bodies. Erosion control measures shall be utilized throughout all phases of operation where sediment runoff from exposed slopes threatens to enter waters of the State. At no time shall silt laden runoff be allowed to enter the stream or be placed where it may enter the stream.
41. Silty/turbid water from the excavation and/or project activities shall not be discharged into the stream, lake, or into storm drains. Such water shall be pumped into a holding facility or into a settling pond located in flat stable areas outside of the stream channel, or sprayed over a large area outside of the stream channel to allow for natural filtration of sediments. At no time shall turbid water from the settling ponds be allowed to enter back into the stream channel until water is cleared of silt.
42. Sediment shall be removed from sediment controls once it has reached one-third of the exposed height of the control. Whenever straw bales are used, they shall be staked and dug into the ground six inches. Catch basins shall be maintained so that no more than six inches of sediment depth accumulates within traps or sumps.
43. Sediment-laden water created by construction, washing or other activities or shall be filtered before it leaves the right of way or enters the stream network or an aquatic resource area. Silt fences or other detention methods shall be installed as close as possible to culvert outlets to reduce the amount of sediment entering aquatic systems.
44. Preparation shall be made so that runoff from steep, erodible surfaces will be diverted into stable areas with little erosion potential.
45. If continued erosion is likely to occur after construction is completed, then appropriate erosion prevention measures shall be implemented and maintained until erosion has subsided.
46. Upon project completion, all exposed soil present in and around the project site shall be stabilized in seven days.
47. Disturbed areas on the project site shall be revegetated as soon as possible with native riparian vegetation.
48. Heavy equipment that will be used in these activities will be in good condition and will be inspected for leakage of coolant and petroleum products and repaired, if necessary, before work is started.

49. Work with heavy equipment will be performed in isolation from flowing water, except as may be necessary to construct coffer dams to divert stream flow and isolate the work site.
50. All equipment operators will be trained in the procedures to be taken should an accident occur. Prior to the onset of work, SMCRCRCD shall ensure that the contractor has prepared a plan to allow a prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
51. All activities performed in or near a stream will have absorbent materials designed for spill containment and cleanup at the activity site for use in case of an accidental spill.
52. All fueling and maintenance of vehicles and other equipment shall be located at least 65 feet from any riparian habitat or water body. The contractor shall ensure contamination of habitat does not occur during such operations.
53. Location of staging/storage areas for equipment, materials, fuels, lubricants, and solvents, will be located outside of the stream's high water channel and associated riparian area. The number of access routes, number and size of staging areas, and the total area of the work site activity shall be limited to the minimum necessary to complete the restoration action. To avoid contamination of habitat during restoration activities, trash will be contained, removed and disposed of throughout the project.
54. Stationary equipment such as motors, pumps, generators, compressors, and welders, located within the dry portion of the stream channel or adjacent to the stream, will be positioned over drip-pans.
55. Work sites will be winterized at the end of each day when significant rains are forecast that may cause unfinished excavations to erode. Winterization procedures shall supervised by a professional trained in erosion control techniques and involve taking necessary measures to minimize erosion on unfinished work surfaces. Winterization includes the following: smoothing unfinished surfaces to allow water to freely drain across them without concentration or ponding; compacting unfinished surfaces where concentrated runoff may flow with an excavator bucket or similar tool, to minimize surface erosion and the formation of rills; and installation of culverts, silt fences, and other erosion control devices where necessary to convey concentrated water across unfinished surfaces, and trap exposed sediment before it leave the work site.
56. Mulching and seeding using local native species mix is required on all exposed soil which may deliver sediment to a stream.
57. Poured concrete shall be excluded from the wetted channel for a period of two (2) weeks after it is poured. During that time the poured concrete shall be kept moist, and runoff shall not be allowed to enter a live stream. Commercial sealants (e.g. Deep Seal, Elasto-Deck BT Reservoir Grade) may be applied to the poured concrete surface where

difficulty in excluding water flow for a long period may occur. If sealant is used, water shall be excluded from the site until the sealant is dry.

In addition, Mitigation Measures 1-3 above are also designed to prevent adverse impacts to water quality.

#### Avoidance and Minimization Measures for Impact to Riparian Vegetation

58. No more than 1/3 of any willow plant shall be harvested annually. Care shall be taken during harvest not to trample or over harvest the willow sources.
59. Planting of seedlings shall begin after December 1, or when sufficient rainfall has occurred to ensure the best chance of survival of the seedlings, but in no case after April 1.
60. Building materials and/or construction equipment shall not be stockpiled or stored where they could be washed into the water or where they will cover aquatic or riparian vegetation.
61. The contractor shall not dump any litter or construction debris within the riparian/stream zone. All such debris and waste shall be picked up daily and properly disposed of at an appropriate site. During all activities at project work sites, all trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas.
62. The Operator shall retain as many trees and brush as feasible, emphasizing shade producing and bank stabilizing trees and brush.
63. The Operator shall ensure that the spread or introduction of invasive exotic plants shall be avoided to the maximum extent possible. When practicable, invasive exotic plants at the work site shall be removed.
64. Cape ivy (*Delairea odorata*) removed during the project shall be bagged and appropriately disposed of in a landfill. It shall not be used in composting or left otherwise exposed in or around the project site.
65. Use project designs and access points that minimize riparian disturbance without affecting less stable areas, which may increase the risk of channel instability.
66. Minimize compaction by using equipment that either has (relative to other equipment available) less pressure per square inch on the ground or a greater reach, thus resulting in less compaction or less area overall compacted or disturbed.
67. At the completion of the project, soil compaction that is not an integral element of the design of a crossing should be de-compacted.



68. Disturbance or removal of vegetation shall not exceed the minimum necessary to complete operations.
69. Disturbed and compacted areas shall be revegetated with locally obtained native plant species. The species used should be specific to the project vicinity or the region of the state where the project is located, and comprise a diverse community structure (plantings should include both woody and herbaceous species). Plant at a ratio of two plantings to one removed plant.
70. The standard for success is 80 percent survival of plantings or 80 percent ground cover for broadcast planting of seed after a period of three (3) years. If at the end of three (3) years there is less than 80% survival, all dead plants shall be replaced.

#### Measures to Avoid and Minimize Hazards

71. The contractor shall have dependable radio or phone communication on-site to be able to report any accidents or fire that might occur.
72. All internal combustion engines shall be fitted with spark arrestors.
73. The contractor shall have an appropriate fire extinguisher(s) and fire fighting tools (shovel and axe at a minimum) present at all times when there is a risk of fire.
74. Vehicles shall not be parked in tall grass or any other location where heat from the exhaust system could ignite a fire.

## 2.4 LCP Consistency Analysis

### 2.4.1 Relevant San Mateo County LCP Policies:

#### 7.1 Definition of Sensitive Habitats

Define sensitive habitats as any area in which plant or animal life or their habitats are either rare or especially valuable and any area which meets one of the following criteria: (1) habitats containing or supporting “rare and endangered” species as defined by the State Fish and Game Commission, (2) all perennial and intermittent streams and their tributaries, (3) coastal tide lands and marshes, (4) coastal and offshore areas containing breeding or nesting sites and coastal areas used by migratory and resident water-associated birds for resting areas and feeding, (5) areas used for scientific study and research concerning fish and wildlife, (6) lakes and ponds and adjacent shore habitat, (7) existing game and wildlife refuges and reserves, and (8) sand dunes.

Sensitive habitat areas include, but are not limited to, riparian corridors, wetlands, marine habitats, sand dunes, sea cliffs, and habitats supporting rare, endangered, and unique species.

#### 7.2 Designation of Sensitive Habitats

Designate sensitive habitats as including, but not limited to, those shown on the Sensitive Habitats Map for the Coastal Zone.

### 7.3 Protection of Sensitive Habitats

- a. Prohibit any land use or development which would have significant adverse impact on sensitive habitat areas.
- b. Development in areas adjacent to sensitive habitats shall be sited and designed to prevent impacts that could significantly degrade the sensitive habitats. All uses shall be compatible with the maintenance of biologic productivity of the habitats.

### 7.4 Permitted Uses in Sensitive Habitats

- a. Permit only resource dependent uses in sensitive habitats. Resource dependent uses for riparian corridors, wetlands, marine habitats, sand dunes, sea cliffs and habitats supporting rare, endangered, and unique species shall be the uses permitted in Policies 7.9, 7.16, 7.23, 7.26, 7.30, 7.33, and 7.44, respectively, of the County Local Coastal Program on March 25, 1986. [Emphasis added]
- b. In sensitive habitats, require that all permitted uses comply with U.S. Fish and Wildlife and State Department of Fish and Game regulations.

### 7.5 Permit Conditions

- a. As part of the development review process, require the applicant to demonstrate that there will be no significant impact on sensitive habitats. When it is determined that significant impacts may occur, require the applicant to provide a report prepared by a qualified professional which provides: (1) mitigation measures which protect resources and comply with the policies of the Shoreline Access, Recreation/Visitor-Serving Facilities and Sensitive Habitats Components, and (2) a program for monitoring and evaluating the effectiveness of mitigation measures. Develop an appropriate program to inspect the adequacy of the applicant's mitigation measures.
- b. When applicable, require as a condition of permit approval the restoration of damaged habitat(s) when in the judgment of the Planning Director restoration is partially or wholly feasible.

### 7.7 Definition of Riparian Corridors

Define riparian corridors by the "limit of riparian vegetation" (i.e., a line determined by the association of plant and animal species normally found near streams, lakes and other bodies of freshwater: red alder, jaumea, pickleweed, big leaf maple, narrow-leaf cattail, arroyo willow, broadleaf cattail, horsetail, creek dogwood, black cottonwood, and box elder). Such a corridor must contain at least a 50% cover of some combination of the plants listed.

## 7.8 Designation of Riparian Corridors

Establish riparian corridors for all perennial and intermittent streams and lakes and other bodies of freshwater in the Coastal Zone. Designate those corridors shown on the Sensitive Habitats Map and any other riparian area meeting the definition of Policy 7.7 as sensitive habitats requiring protection, except for manmade irrigation ponds over 2,500 sq. ft. surface area.

## 7.9 Permitted Uses in Riparian Corridors

- a. Within corridors, permit only the following uses: (1) education and research, (2) consumptive uses as provided for in the Fish and Game Code and Title 14 of the California Administrative Code, (3) fish and wildlife management activities, (4) trails and scenic overlooks on public land(s), and (5) necessary water supply projects. [Emphasis added]

...

## 7.10 Performance Standards in Riparian Corridors

Require development permitted in corridors to: (1) minimize removal of vegetation, (2) minimize land exposure during construction and use temporary vegetation or mulching to protect critical areas, (3) minimize erosion, sedimentation, and runoff by appropriately grading and replanting modified areas, (4) use only adapted native or non-invasive exotic plant species when replanting, (5) provide sufficient passage for native and anadromous fish as specified by the State Department of Fish and Game, (6) minimize adverse effects of waste water discharges and entrainment, (7) prevent depletion of groundwater supplies and substantial interference with surface and subsurface waterflows, (8) encourage waste water reclamation, (9) maintain natural vegetation buffer areas that protect riparian habitats, and (10) minimize alteration of natural streams. [Emphasis added.]

## Relevant City of Half Moon Bay LCP Policies:

### Policy 3-1 Definition of Sensitive Habitats

Define sensitive habitats as any area in which plant or animal life or their habitats are either rare or especially valuable and as those areas which meet one of the following criteria: (1) habitats containing or supporting “rare and endangered” species as defined by the State Fish and Game Commission, (2) all perennial and intermittent streams and their tributaries, (3) coastal tidelands and marshes, (4) coastal and offshore areas containing breeding and/or nesting sites and coastal areas used by migratory and resident water-associated birds for resting and feeding, (5) areas used for scientific study and research concerning fish and wildlife, (6) lakes and ponds and adjacent shore habitat, (7) existing game and wildlife refuges and reserves, and (8) sand dunes.

Such areas include riparian areas, wetlands, sand dunes, marine habitats, sea cliffs, and habitats supporting rare, endangered, and unique species.

### Policy 3-3 Protection of Sensitive Habitats

- (a) Prohibit any land use and/or development which would have significant adverse impacts on sensitive habitat areas.
- (b) Development in areas adjacent to sensitive habitats shall be sited and designed to prevent impacts that could significantly degrade the environmentally sensitive habitats. All uses shall be compatible with the maintenance of biologic productivity of such areas.

### Policy 3-4 Permitted Uses

- (a) Permit only resource-dependent or other uses which will not have a significant adverse impact in sensitive habitats.
- (b) In all sensitive habitats, require that all permitted uses comply with U.S. Fish and Wildlife and State Department of Fish and Game regulations.

### Policy 3-5 Permit Conditions

- (a) Require all applicants to prepare a biologic report by a qualified professional selected jointly by the applicant and the City to be submitted prior to development review. The report will determine if significant impacts on the sensitive habitats may occur, and recommend the most feasible mitigation measures if impacts may occur.

The report shall consider both any identified sensitive habitats and areas adjacent. Recommended uses and intensities within the habitat areas shall be dependent on such resources, and shall be sited and designed to prevent impacts which would significantly degrade areas adjacent to the habitats. The City and the applicant shall jointly develop an appropriate program to evaluate the adequacy of any mitigation measures imposed.

- (b) When applicable, require as a condition of permit approval, the restoration of damaged habitat when, in the judgment of the Planning Director, restoration is partially or wholly feasible.

### Policy 3-7 Definition of Riparian Corridors

- (a) Define riparian corridors by the “limit of riparian vegetation” (i.e. a line determined by the association of plant and animal species normally found near streams, lakes, and other bodies of fresh water: red alder, jaumea, pickleweed, big leaf maple, narrowleaf cattail, arroyo willow, broadleaf cattail, horsetail, creek dogwood, black cottonwood, and box elder) . Such a corridor must contain at least a 50% cover of some combination of the plants listed.

### Policy 3-8 Designation of Riparian Corridors

- (a) Establish riparian corridors for all perennial and intermittent streams and lakes and other bodies of fresh water in the Coastal Zone. Designate those corridors shown on the Habitat Areas and Water Resources Overlay and any other riparian areas as sensitive habitats requiring protection, except for man-made irrigation ponds over 2,500 square feet surface area.

...

#### Policy 3-9 Permitted Uses in Riparian Corridors

- (a) Within corridors, permit only the following uses: (1) education and research, (2) consumptive uses as provided for in the Fish and Game Code and Title 14 of the California Administrative Code, (3) fish and wildlife management activities, (4) trails and scenic overlooks on public land(s) , and (5) necessary water supply projects. [Emphasis added.]

...

#### Policy 3-10 Performance Standard in Riparian Corridors

- (a) Require development permitted in corridors to: (1) minimize removal of vegetation, (2) minimize land exposure during construction and use temporary vegetation or mulching to protect critical areas, (3) minimize erosion, sedimentation, and runoff by appropriately grading and replanting modified areas, (4) use only adapted native or non-invasive exotic plant species when replanting, (5) provide sufficient passage for native and anadromous fish as specified by the State Department of Fish and Game, (6) minimize adverse effects of waste water discharges and entrainment, (7) prevent depletion of groundwater supplies and substantial interference with surface and subsurface waterf lows, (8) encourage waster water reclamation, (9) maintain natural vegetation buffer areas that protect riparian habitats, and (10) minimize alteration of natural streams. [Emphasis added.]

...

#### 18.38.075 Riparian Corridors and Buffer Zones.

- A. Permitted Uses. Except as may be specified in this Chapter, within Riparian Corridors, only the following uses shall be permitted:
  - 1. Education and research;
  - 2. Consumptive uses as provided for in the Fish and Game Code and Title 14 of the California Administrative Code;
  - 3. Fish and wildlife management activities;
  - 4. Trails and scenic overlooks on public land(s);
  - 5. Necessary water supply projects;
  - 6. Restoration of riparian vegetation.

...

C. Standards. Development shall be designed and constructed so as to ensure:

1. That the removal of vegetation is minimized;
2. That land exposure during construction is minimized and that temporary vegetation or mulching is used to protect critical areas;
3. That erosion, sedimentation, and runoff is minimized by appropriately grading and replanting modified areas;
4. That only adapted native or non-invasive exotic plant species are used for replanting;
5. That sufficient passage is provided for native and anadromous fish as specified by the State Department of Fish and Game;
6. That any adverse effects of waste water discharges and entrainment are minimized;
7. That any depletion of groundwater supplies and substantial interference with surface and subsurface water flows are prevented;
8. That waste water reclamation is encouraged;
9. That natural vegetation buffer areas which protect riparian habitats are maintained;
10. That any alteration of natural streams is minimized.

In addition to the above policies, the City of Half Moon Bay incorporates Chapter 3 policies of the Coastal Act into their LCPs as guiding policies. The applicable Chapter 3 policy is the provisions of Section 30236 of the Coastal Act.:

#### Section 30236 Water supply and flood control

Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (1) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat. [Emphasis added]

#### **2.4.2 Analysis of Development within Stream and Riparian Corridor**

As discussed above, Frechman's Creek is a perennial stream which along with its riparian system provides habitat for a number of rare, threatened, and endangered species, including the CCC steelhead, San Francisco garter snake, California red-legged frog, western pond turtle, the San Francisco dusky footed woodrat and various species of birds. The project site meets the

definition of sensitive habitat under the definition in both the City's and the County's LCPs because it is a perennial stream and because it supports rare and endangered species. The project site also meets the more specific definition of riparian corridor in both the City and County's LCP because of the prevalence of willows and alders, which are among the list of riparian plants that must be present to find an area as riparian corridor in accordance with San Mateo County LUP Policy 7.7 and Half Moon Bay LCP Policy 3-7.

The proposed PWP/Specific Project, when completed, will benefit sensitive species and habitat by removing a barrier for steelhead migration, restoring the channel to more natural grades, and both restoring the adjacent riparian area through removal of invasive plants (mainly cape ivy, poison hemlock, and eucalyptus seedlings) and revegetating with native riparian plants. However, significant adverse impacts to biological resources and water quality could occur as a result of construction activities that involve grading, excavation, operation of heavy equipment in the stream channel, and disturbance to riparian vegetation.

The City and County LCPs have specific policies aimed to directly protect streams and riparian corridors that set forth a number of different limitations on the types of uses that may be allowed in streams and riparian corridors as well as standards for those permitted uses. The Half Moon Bay LCP also incorporates Section 30236 of the Coastal Act as a guiding policy which expressly provides for the protection of streams.

In order to determine consistency with both the stream and riparian habitat protection policies set forth in both the City's and County's LCPs, the Commission must evaluate (1) whether the proposed PWP/Specific project would be an allowable use in streams and riparian corridors, and (2) whether the proposed development meet the performance standards for allowable development in streams and riparian corridors.

#### Permitted Use

The San Mateo County and Half Moon Bay riparian corridor and stream protection policies permit fish and wildlife management activities and development that improve fish and wildlife habitat.

The primary objective of the proposed PWP/Specific Project is to improve fish passage on Frenchman's Creek by removing an existing barrier to migration and replacing the culvert with a clear-span bridge, and to stabilize the grade of the channel by installing boulder weirs in the stream channel. Because the proposed PWP/Specific Project's goal cannot be achieved elsewhere but within the actual stream and riparian system where the existing culvert is located and because the proposed PWP/Specific Project is developed with the wildlife agencies (CDFG and NMFS) for the sole purpose of removing fish migration barrier and improving access for steelhead to better rearing and spawning habitat, it is a fish and wildlife management activity that would improve habitat. As such, the Commission finds that the proposed PWP as modified is consistent with provisions concerning allowable uses in riparian corridors and streams pursuant to San Mateo County LCP Policy 7.8, Half Moon Bay LCP Policies 3-8, and Coastal Act Section 30236. The Commission also finds that the Specific Project, as conditioned, is consistent with the PWP as modified.

### Development Standards

In addition to qualifying as an allowable use, the proposed PWP/Specific Project also needs to meet the criteria and performance standards set forth in the respective LCPs for permitted development in riparian corridors and streams.

San Mateo County LUP Policy 7.10 and Half Moon Bay LUP Policy 3-10 (which are identical) state:

#### Performance Standard in Riparian Corridors

- a. Require development permitted in corridors to: (1) minimize removal of vegetation, (2) minimize land exposure during construction and use temporary vegetation or mulching to protect critical areas, (3) minimize erosion, sedimentation, and runoff by appropriately grading and replanting modified areas, (4) use only adapted native or non-invasive exotic plant species when replanting, (5) provide sufficient passage for native and anadromous fish as specified by the State Department of Fish and Game, (6) minimize adverse effects of waste water discharges and entrainment, (7) prevent depletion of groundwater supplies and substantial interference with surface and subsurface water flows, (8) encourage waster water reclamation, (9) maintain natural vegetation buffer areas that protect riparian habitats, and (10) minimize alteration of natural streams.

...

Moreover, Section 30236 of the Coastal Act states:

#### Water supply and flood control

Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (1) necessary water supply projects, (2) flood control projects where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat.

Pursuant to the above policies, the proposed PWP/Specific Project needs to demonstrate that it would (1) comply with the standards for development in riparian corridors as set forth in San Mateo County LUP Policy 7.10 and Half Moon Bay LUP Policy 3-10 and (2) comply with the standards for stream alteration specified in Section 30236 of Coastal Act.

#### *Standards for Development in Riparian Corridors*

Because the proposed development would be carried out within a riparian corridor as defined in Policy 7.8 and Policy 3-8 of the San Mateo and Half Moon Bay LCPs respectively, the proposed PWP/Specific Project is required to meet ten standards specified in LUP Policy 7.10 and LUP



Policy 3-10 in the San Mateo and Half Moon Bay LCPs for development permitted in riparian corridors. The following lists the LCP standards and provides an analysis of consistency for each of the standards

1. Minimize removal of vegetation,

The amount of vegetation that would be removed for the proposed PWP/Specific Project would be limited to only the defined project area as required to implement the project and ensure protection of sensitive species during construction. In addition the mature alder trees on site would not be removed and the entire site would be revegetated after construction is complete. Moreover, Mitigation Measure Nos. 58-70 ensure removal of vegetation on site would be minimized and that revegetation would occur as soon as the project is completed. As such, vegetation removal would be the minimum necessary to carry out the proposed PWP/Specific project.

2. Minimize land exposure during construction and use temporary vegetation or mulching to protect critical areas,

Land exposure during construction would be minimized as the SMCRCDD is proposing to cover any exposed soil with erosion control blankets and mulching. In addition, the applicant is proposing numerous mitigation measures (specifically Mitigation Measures Nos. 22, 35, 39, 40, 47, and 56) to ensure that bare soil exposure would be minimized.

3. Minimize erosion, sedimentation, and runoff by appropriately grading and replanting modified areas,

The applicant is proposing to grade the stream channel to prevent erosion upstream. Temporary access would also be recontoured and the site would be revegetated with native vegetation upon completion of construction to minimize sedimentation. Also numerous mitigation measures in Section 2.3 above have been incorporated to address erosion, sedimentation, runoff, and revegetation. As such, erosion, sedimentation, and runoff would be minimized by the proposed PWP/Specific Project.

4. Use only adapted native or non-invasive exotic plant species when replanting,

The applicant is proposing to use only native riparian species as demonstrated in the revegetation plan (Exhibit 3).

5. Provide sufficient passage for native and anadromous fish as specified by the State Department of Fish and Game,

The proposed PWP/Specific Project would provide fish passage where it currently does not exist and as such meets the above standard.

6. Minimize adverse effects of waste water discharges and entrainment,

Because a temporary water diversion would be installed, the amount of wastewater that the proposed development would generate would be minimal. Potential entrainment due to the water diversion system would be minimized through Mitigation Measure Nos 4 and 25 that require the installation of screens to protect fish and frog tadpoles. As such, the proposed PWP/Specific Project minimizes waste water and risks of potential entrainment.

7. Prevent depletion of groundwater supplies and substantial interference with surface and subsurface water flows,

The proposed PWP/Specific Project would remove a culvert crossing that currently interferes with the surface flow of the stream and replace it with a clear span bridge designed above the 100-year storm event flood level. As such, it would prevent substantial interference with surface water flows.

8. Encourage waste water reclamation,

Waste water would not be a significant issue for the proposed PWP/Specific Project as the work site would be dewatered prior to construction.

9. Maintain natural vegetation buffer areas that protect riparian habitats

The vegetation buffer of the riparian zone would be temporarily disturbed but vegetation removal would be minimized and the entire site be revegetated, and thus, the vegetation buffer would be maintained by the proposed PWP/Specific Project.

10. Minimize alteration of natural streams.

The proposed PWP/Specific project would remove a culvert crossing that is currently altering natural stream flow substantially. The culvert would be replaced with a clear-span bridge and the channel and bank would be stabilized by boulder weirs and re-contoured to more natural grades after the culvert removal. Because the proposed PWP/Specific Project would restore a currently channelized section of the stream to a more natural configuration, it would minimize the alteration of the natural stream.

For the above reasons, the Commission finds that the proposed PWP as modified meets the development standards for permitted development in riparian corridors as required by San Mateo County LCP Policy 7.10 and Half Moon Bay Policy 3-10. The Commission also finds that the NOID for the Specific Project as conditioned is consistent with the PWP as modified.

### *Mitigation Measures*

To meet the requirement of Section 30236 of the Coastal Act concerning channelizations, dams, or other substantial alterations of rivers and streams, incorporated as guiding policy in the Half Moon Bay LCP, the proposed PWP/Specific Project should not only be one of the three allowable uses, but must also incorporate the best feasible mitigation measures. As discussed

above, the proposed PWP/Specific Project which would result in substantial alteration of Frenchman's Creek, is an allowable development in the stream because it would improve fish and wildlife habitat. The proposed PWP/Specific Project also incorporates reasonable and prudent mitigation measures required by federal and state agency consultations, including the U.S. Army Corps of Engineers, the USFWS, NMFS, and CDFG. The proposed PWP/Specific Project has been covered by a programmatic Mitigated Negative Declaration completed by CDFG, and has been granted a 1602 Streambed Alteration Agreement by CDFG as well as Biological Opinions from NMFS and USFWS. Mitigation measures required by the agencies have been incorporated into SMCRC's proposed PWP/Specific Project. However, the proposed PWP/Specific Project has not obtained official USFWS approval with respect to potential impacts to the San Francisco garter snake even though mitigation measures for the snake were developed by CDFG and in consultation with USFWS biologist. As such, the Commission is recommending Modification No. 4 and Special Condition No. 4 to ensure that the PWP/Specific Project obtain the necessary approval from USFWS prior to construction.

The proposed PWP/Specific Project is intended to benefit the federally threatened CCC steelhead by restoring passage on Frenchman's Creek. The proposed development would be located in a sensitive habitat but would not result in any permanent destruction or displacement of the sensitive habitat. The current culvert crossing is approximately 10 feet wide and is channelizing the stream, causing erosion and significant alteration of the natural stream. The proposed bridge would be 12 feet by 65 feet and the bridge span and abutments would be above the creek channel and outside of the stream bank. Rip rap at the toe and slope of the creek bank would be necessary to protect the bridge; however, the extent of the rip rap fill in the stream would be far less than the existing culvert crossing. The proposed PWP/Specific project would also not result in any permanent removal of vegetation. No mature trees in the riparian zone would be removed, invasive cape ivy and poison hemlock would be eradicated and any areas disturbed during construction would be replanted with native, riparian vegetation.

As discussed above, while the proposed PWP/Specific Project would not result in permanent destruction or displacement of habitat, significant adverse impacts to sensitive species, their habitat, and water quality could result from construction activities that include vegetation removal, installation of a coffer dam, excavation, grading and operation of heavy equipment.

Frenchman's Creek provides spawning and rearing habitat for the CCC steelhead. The current culvert limits steelhead to the lower reaches of the stream. Because the existing culvert is a barrier to adults and juveniles, no steelhead is expected to occur upstream of the culvert, and as such, installation of the coffer dam above the culvert is not expected to cause any impacts to steelhead. However, the fish could occur downstream of the culvert and could suffer injury or mortality due to crushing, harassment, or stranding. Potential indirect impacts to fish include changes to habitat and water quality that could affect survival and numbers of individuals/populations. However Mitigation Measures Nos. 1-9 and 34-57 incorporated into the proposed PWP/Specific Project will reduce these impacts to less than significant levels as they minimize both direct and indirect impacts through limiting the timing of construction to when water levels would be the lowest in the creek, restricting heavy equipment in the live stream, ensuring that any fish relocation would be carried out by a qualified biologist according to

NMFS guidelines, restricting equipment staging and fueling areas, and minimizing the amount of sediment that could enter the stream.

The stream and riparian habitat of the project area serve as valuable habitat for the California red-legged frog and San Francisco garter snakes. California red-legged frogs use a variety of aquatic and upland habitats. The project site contains a perennial stream that could be used by the frogs for breeding, dispersal, and foraging and the riparian habitat provides foraging habitat and refuge areas. Because the California red-legged frog is a significant prey species for the San Francisco garter snake, the two species' habitats overlap. San Francisco garter snakes use stream and riparian areas mainly for foraging and dispersal but not breeding.

Potential direct impacts to San Francisco garter snake and California red-legged frog include injury or death of adults or tadpoles from crushing by construction equipment and through dewatering that could kill frog tadpoles. Potential indirect impacts include temporary disturbance to habitat and water quality that could affect the survival of individuals and populations. Mitigation Measures Nos. 8-29 and 34-57 incorporated into the proposed PWP/Specific Project will reduce these impacts to less than significant levels as they minimize both direct and indirect impacts through by construction to outside the sensitive frog breeding season and requiring pre-construction surveys, contractor training, constant presence of qualified biologists to monitor construction, hand clearing of vegetation to ensure that any frog or snake that could move into the project area would be visible to biologists onsite, removal of any snake or frog from the project site by qualified biologist should they be found on the construction site, installation of screens for tadpoles for dewatering systems, minimizing the amount of sediment that could enter the stream, restricting equipment staging and fueling areas, and requiring the restoration of the disturbed sites with native vegetation as soon as construction is complete.

Western pond turtles are also a species associated with stream and riparian habitats of the San Mateo coast. Potential impacts to western pond turtles include injury or death from construction activities and degradation of water quality. Mitigation Measure Nos. 30-33 and 34-57 would reduce potential impacts to western pond turtles to less than significant levels by requiring the installation of exclusionary fencing around the project site, presence of biological monitors, and relocation of any turtles found within the project area.

Because these mitigation measures have been deemed essential by the state and federal wildlife agencies to protect CCC steelhead, San Francisco garter snake, and California red-legged frog, and ensure that the proposed development would not result in significant adverse impacts to these species and their habitat or to water quality, the Commission recommends Modification No. 1 for the proposed PWP and imposes Special Condition No. 1, which requires the implementation of Mitigation Measure Nos. 1-74 as described in this document.

In addition to the mitigation measures proposed, some additional measures, summarized below, are necessary to mitigate the project's impacts to birds.

The dense riparian vegetation along Frenchman's Creek provide valuable habitat for birds and raptors that could use the riparian corridors for breeding, feeding, and protection. The proposed PWP/Specific Project would not remove any mature riparian trees and would minimize overall

vegetation removal as stated in Mitigation Measure Nos. 58-70, which would minimize potential adverse impacts to sensitive bird habitat. However construction activities and noise could disturb nesting birds on and adjacent to the project site. The construction window identified in the proposed mitigation measures requires that construction activities occur between July 1 and October 15 (the most restrictive timing limitation proposed to protect the California red-legged frog). The programmatic Mitigated Negative Declaration states that work occurring after July 31 would eliminate potential impacts to nesting raptors and migratory birds from disturbance during construction. However, the post July 31 construction date is not an explicit mitigation measure required in the Mitigated Negative Declaration or proposed by the applicant. In addition, regional CDFG biologist (pers comm. Dave Johnston) working in the San Mateo Coast and familiar with the project site stated that the nesting season for birds in the region does not end until August 31. As such, in order to ensure that the proposed PWP/Specific Project would prevent adverse impacts to birds and raptors, the Commission imposes Modification No. 2 and Special Condition No. 2 to prohibit any construction activities prior to or on August 31, including but not limited to any grading or placement of equipment and also requires pre-construction surveys to ensure that if there are any nesting after August 31, that work would not begin until after the young have fledged. The modification and special condition imposed by the Commission ensure that the proposed PWP/Specific Project would not result in any significant adverse impacts to any nesting birds.

The Commission finds that with the requirements of Modification No. 1 to incorporate the proposed mitigation measures 1-47 described above, and Modifications 1, 2 and 4, which incorporate the additional measures described above, that the proposed PWP, as modified, incorporates the best mitigation measures feasible to reduce significant adverse environmental effects on the stream to less than significant levels consistent with the requirements of Section 30236 of the Coastal Act. The Commission further finds that the proposed Specific Project as conditioned through Special Conditions 1, 2 and 4, is consistent with the PWP as modified.

#### **2.4.3 Summary of Development within Stream and Riparian Corridor**

Because the proposed PWP/Specific Project is a permitted use in a riparian corridor and stream, and because the PWP/Specific project meets the standards for permitted development in riparian corridors and stream by minimizing vegetation removal, alteration of natural streams, and waste water discharge and incorporating the best feasible mitigation measures, the proposed PWP is consistent with San Mateo County LCP Policies 7.9 and 7.10 and Half Moon Bay LCP Policies 3-9 and 3-10 and Section 30236 of the Coastal Act, incorporated as guiding policy in the Half Moon Bay LCP. The Commission further finds that the proposed Specific Project, as conditioned, is consistent with the PWP as modified.

#### **2.4.4 Development Adjacent to ESHA**

San Mateo County LCP Policy 7.3(b), Half Moon Bay LCP Policy 3-3(b) and Coastal Act Section 30240(b) require development in areas adjacent to sensitive habitats to be sited and designed to prevent impacts that could significantly degrade the sensitive habitats and that all uses are required to be compatible with the maintenance of biologic productivity of the habitats.

The proposed PWP/ Specific Plan would be located adjacent to two San Francisco dusky-footed woodrat nests (Exhibit 7). The San Francisco dusky-footed woodrat is one of 11 subspecies of woodrat and is a California species of special concern. CDFG applies species of special concern status “to animals not listed under the federal Endangered Species Act or the California Endangered Species Act, but which nonetheless 1) are declining at a rate that could result in listing, or 2) historically occurred in low numbers and known threats to their persistence currently exist” (<http://www.dfg.ca.gov/hcpb/species/ssc/ssc.shtml>). Woodrats build mounded stick lodges that may range in size from 3 to 8 feet across at the base and as much as 6 feet tall. Each nest could be used for up to 30 years and by several generations of woodrats. Woodrat nests meet the definition of sensitive habitat under San Mateo County LCP 7.1 and Half Moon Bay LCP 3-1 because it is habitat for a rare species.

Two woodrat nests were found very recently approximately 30 feet from the edge of the area proposed for disposal of excess soil on the agricultural field. No woodrat nests were found in the project area. The proposed development would not directly impact the adjacent woodrat nests as all of the construction activities would occur south of the nest. However, injury or death of woodrats could occur from construction activities and woodrats inside the nest could be disturbed by construction. Because the woodrat nests are a very recent discovery, mitigation measures for the woodrat are not incorporated into the proposed PWP/Specific Project. Mitigation measures to reduce potential impacts to San Francisco dusky-footed woodrats recommended by CDFG biologist include demarcating a 50-foot buffer around the woodrat nests and prohibiting any equipment staging or operation within the 50-foot buffer. In addition, biological monitoring, and minimizing vegetation removal within the 50-foot buffer is also recommended. Therefore the Commission recommends Modification No. 3 and Special Condition No. 3 that require the applicant, prior to any construction, to delineate areas within 50 feet of the woodrat nest, prohibit all equipment staging and operation within the 50-foot limit, conduct biological monitoring, and limit hand removal of vegetation within 50 feet of the nest to only that which is deemed necessary by CDFG and USFWS to allow for the adequate biological monitoring of the San Francisco garter snake, as required in Mitigation No. 11. With the modifications and special conditions, the proposed PWP/Specific Project would reduce impacts to the San Francisco dusky-footed woodrat to less than significant levels. Therefore, the Commission finds that the proposed PWP, as modified, would be sited and designed to prevent impacts that could significantly degrade the sensitive habitat of the San Francisco dusky-footed woodrat and would maintain the biologic productivity of the sensitive habitats for the woodrat, and as such is consistent with San Mateo Count LCP Policy 7.3(b), Half Moon Bay LCP Policy 3-4(b) and Coastal Act Section 30240(b). The Commission further finds that the NOID for the proposed Specific Project is consistent with the PWP as modified.

### **3.0 CEQA**

The California Department of Fish and Game acted as the lead agency for the development in the Public Works Plan and the Specific Project under the Public Works Plan, which is part of the CDFG Fisheries Grant Restoration Program. On June 7, 2006 the California Department of Fish and Game under the California Environmental Quality Act adopted the Mitigated Negative Declaration, including for the CDFG Fisheries Grant Restoration Program for the program region including Del Norte, Humboldt, Los Angeles, Mendocino, Monterey, San Luis Obispo, San Mateo, Santa

Barbara, Santa Cruz, Siskiyou, Sonoma, Trinity and Ventura Counties (State Clearinghouse Number 2006052041).

The Commission incorporates its findings on conformity with LCP policies at this point as if set forth in full. As discussed above, the Public Works Plan has been modified by the Commission so as to be found consistent with the certified Local Coastal Programs of Half Moon Bay and San Mateo County. In addition, the Specific Project has been conditioned by the Commission so as to be found consistent with the Public Works Plan as modified. As specifically discussed in these above findings which are hereby incorporated by reference, mitigation measures that will minimize or avoid all significant adverse environmental impacts have been made requirements of project approval. As conditioned, there are no feasible alternatives or feasible mitigation measures available, beyond those required, which would substantially lessen any significant adverse impact that the activity may have on the environment. Therefore, the Commission finds that the proposed project can be found to be consistent with the requirements of the Coastal Act to conform to CEQA.

Exhibit 1: Project Location and Site Map

EXHIBIT NO.	1
APPLICATION NO.	
PWP 2-07-04 & SMC NOID 1-07	
PROJECT LOCATION MAP (Page 1 of 2)	

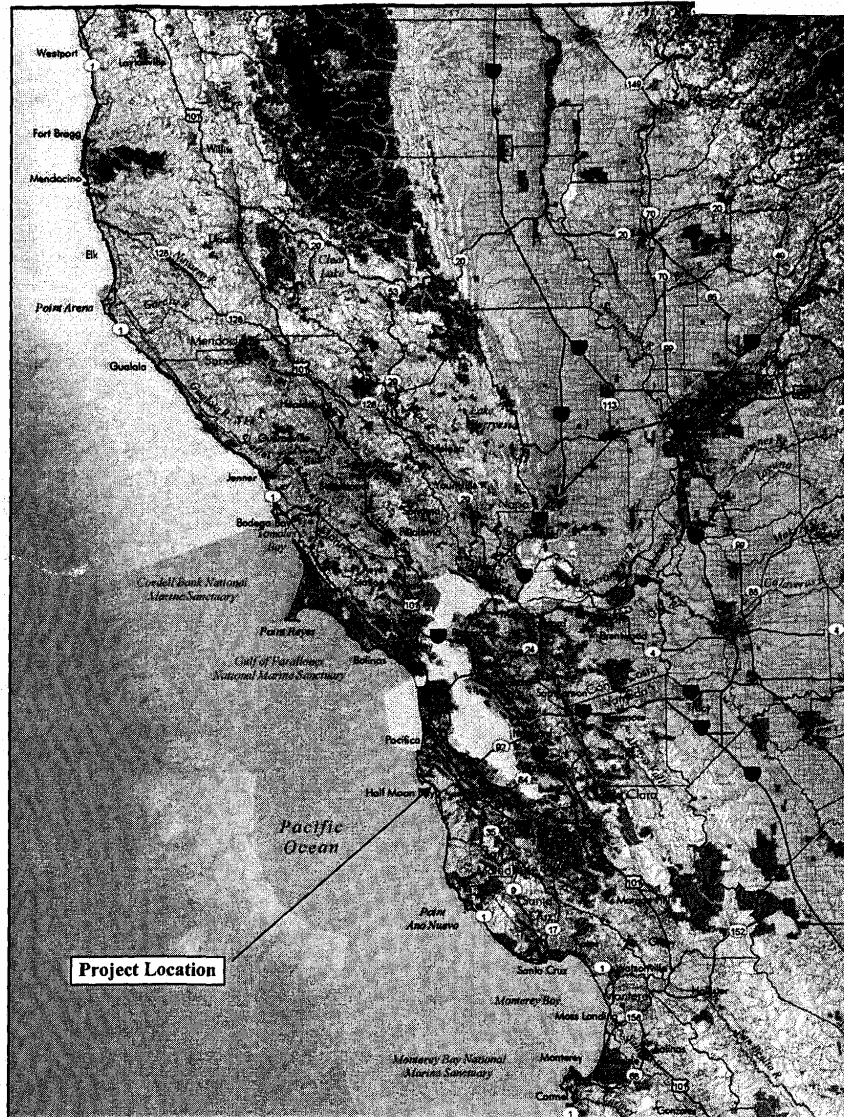




Exhibit 1: Project Location and Site Map

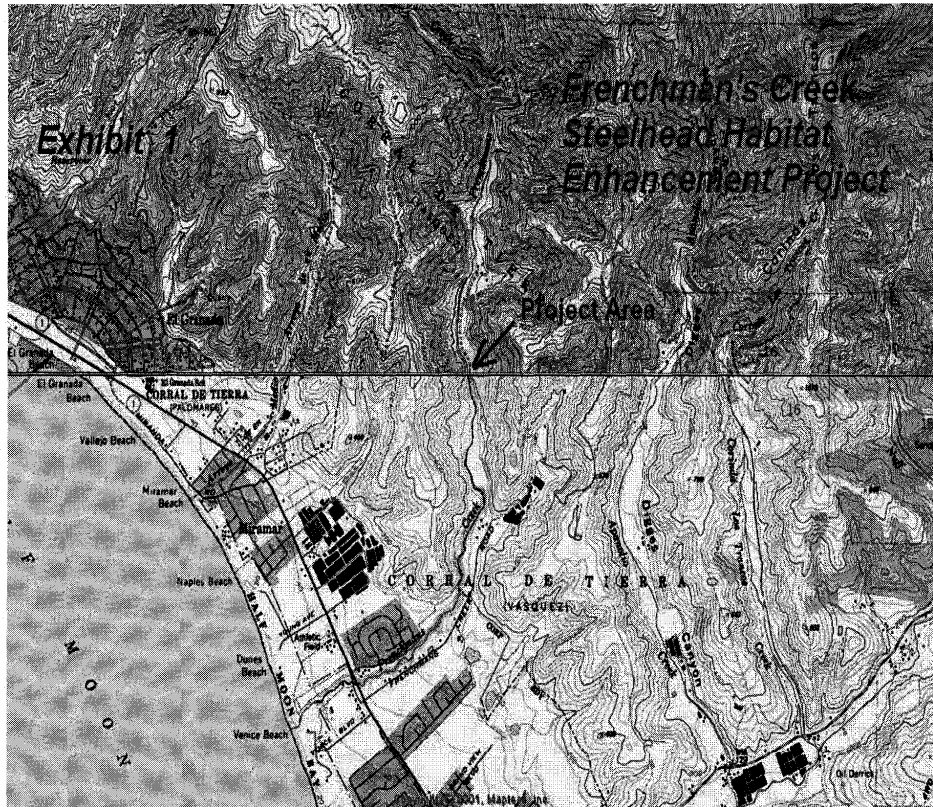
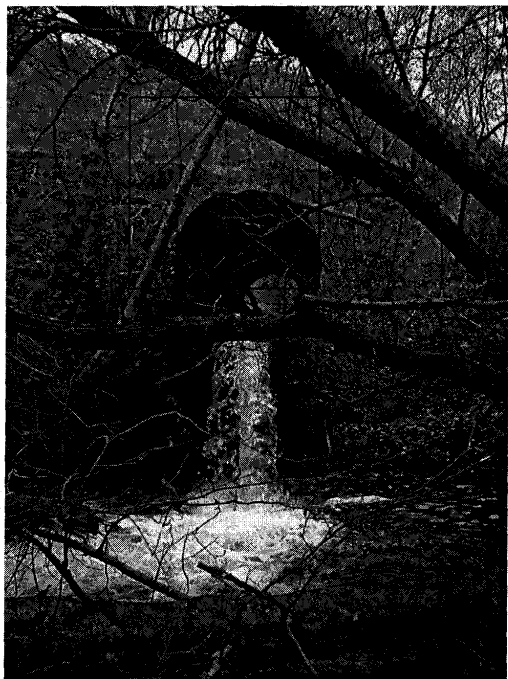


Exhibit 2      **Project Area Photos**

<b>EXHIBIT NO.</b> 2
<b>APPLICATION NO.</b>
PWP 2-07-04 & SMC NOID 1-07
PROJECT PHOTOS (Page 1 of 3)



Culvert Outlet

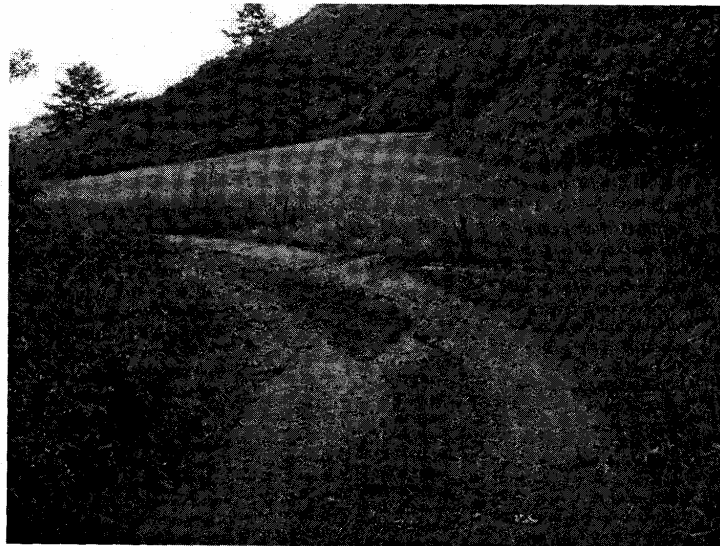
View of Outlet from Crossing above



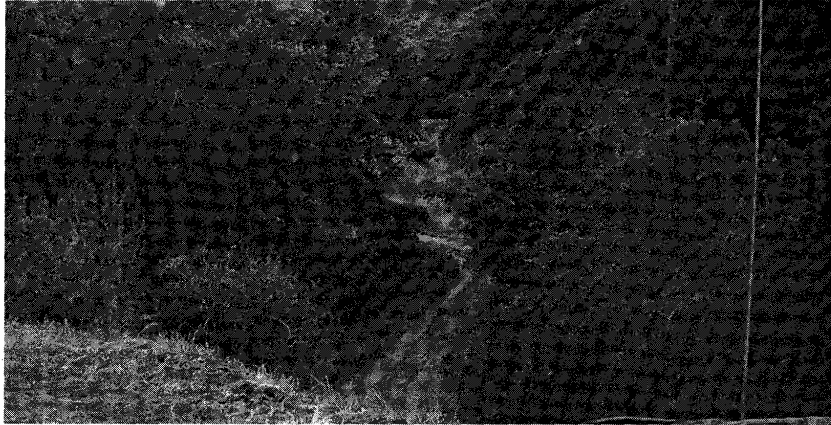
Upstream of the Culvert

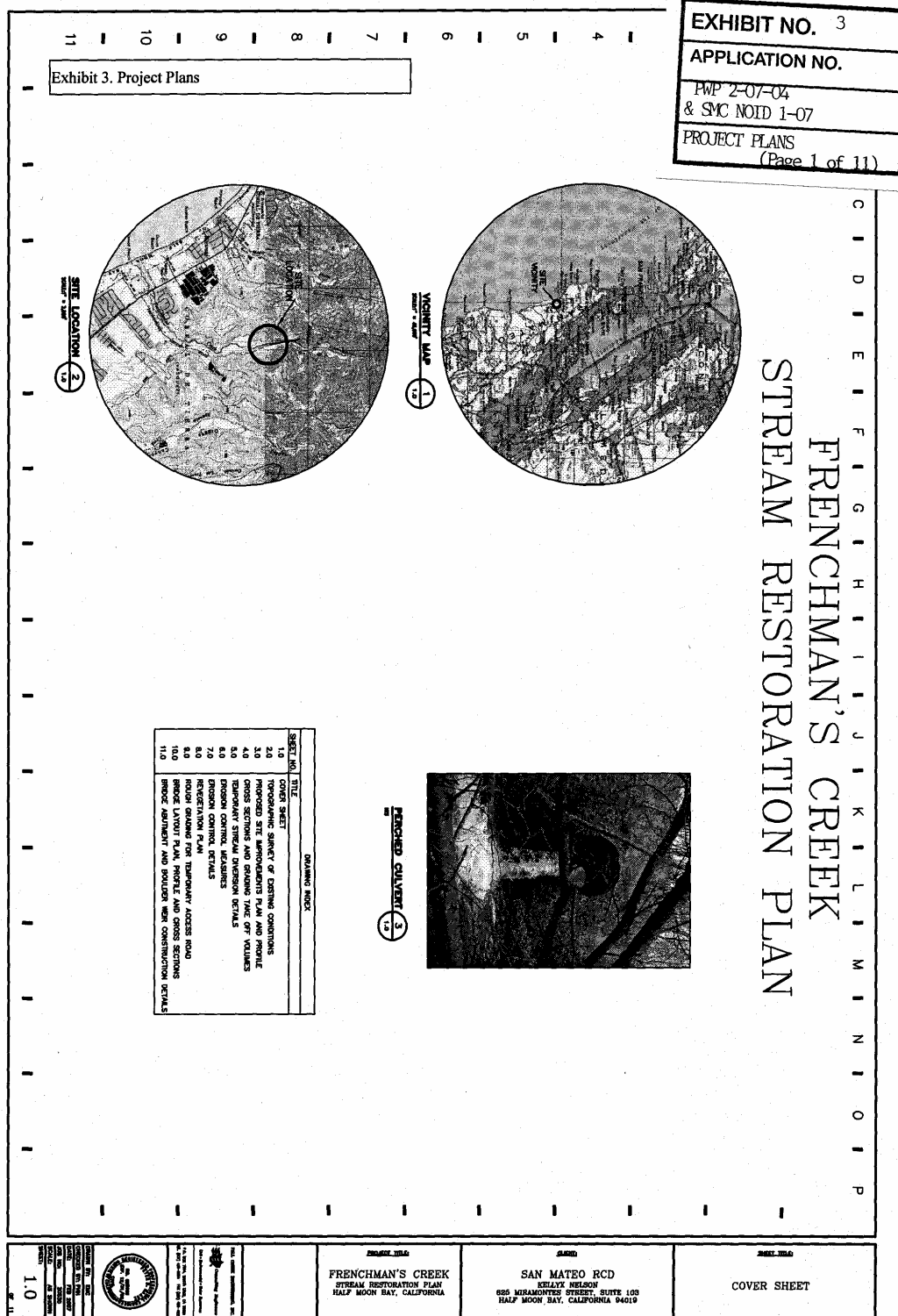


Agricultural Field North of the Crossing



View of the Culvert Crossing from Access Road South of the Stream





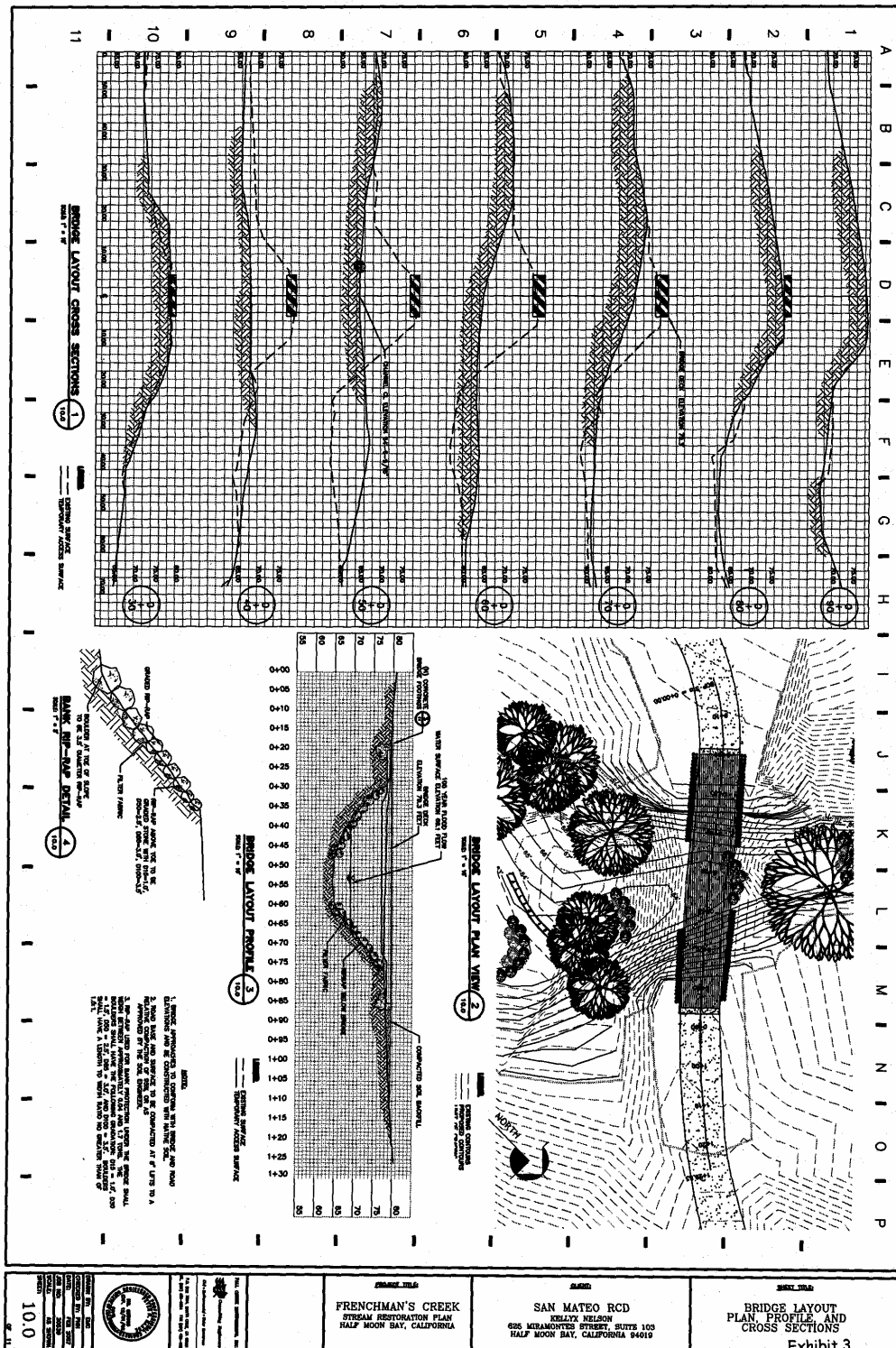
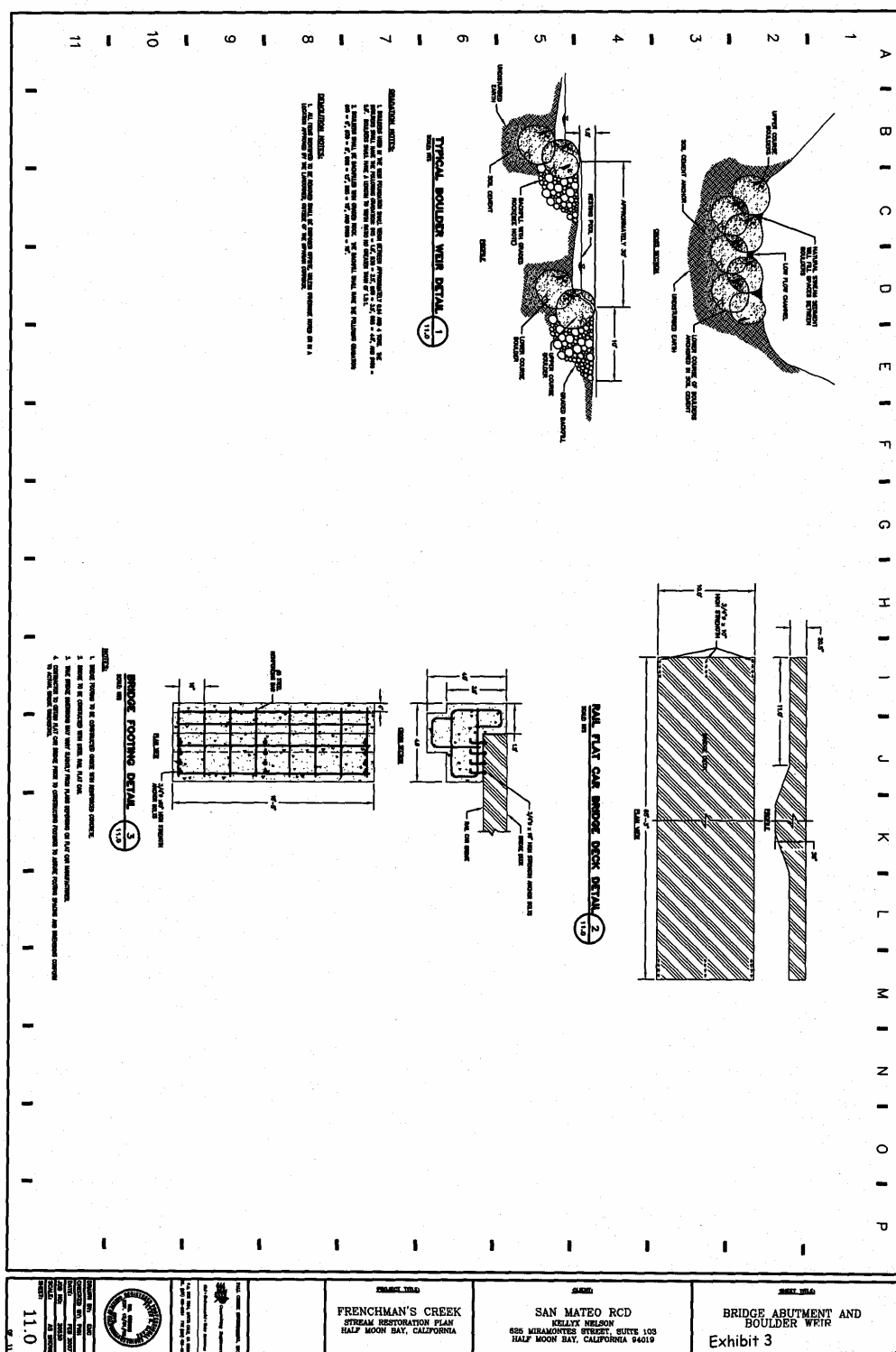


Exhibit 3  
PWP 2-07-04/SMC NOID 1-07  
Page 2 of 11



San Mateo RCD  
Fish Passage Improvement PWP and NOID

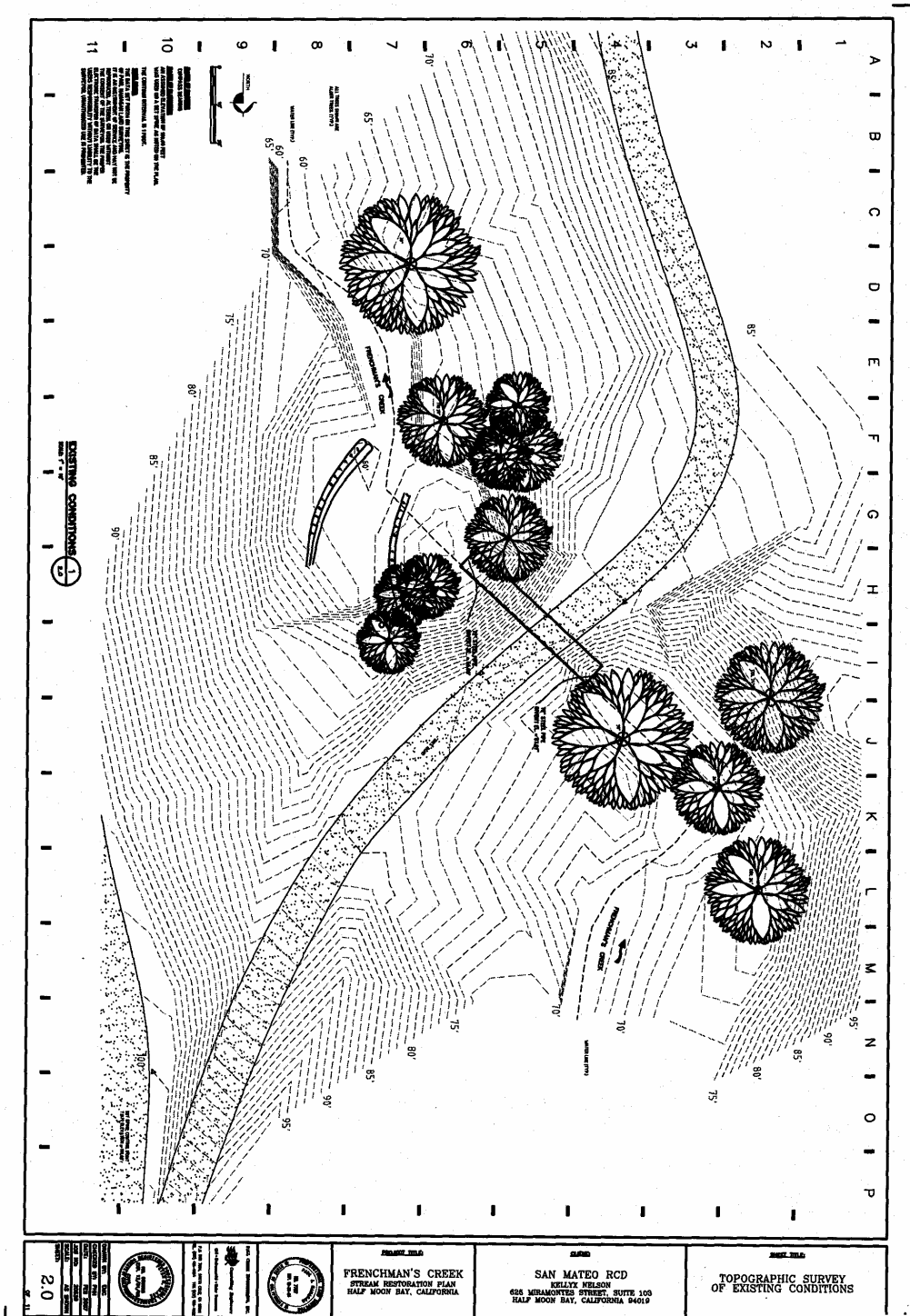
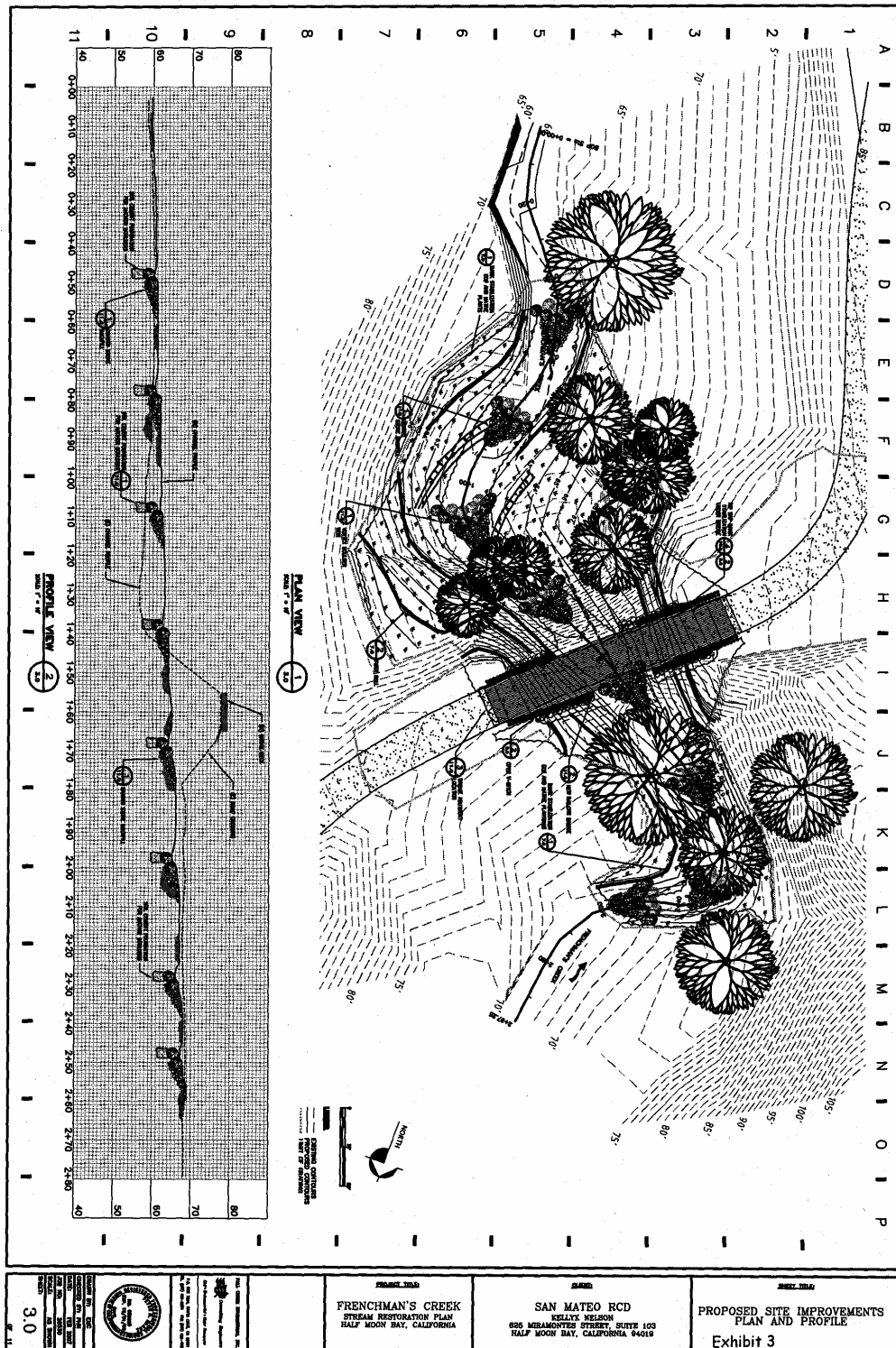
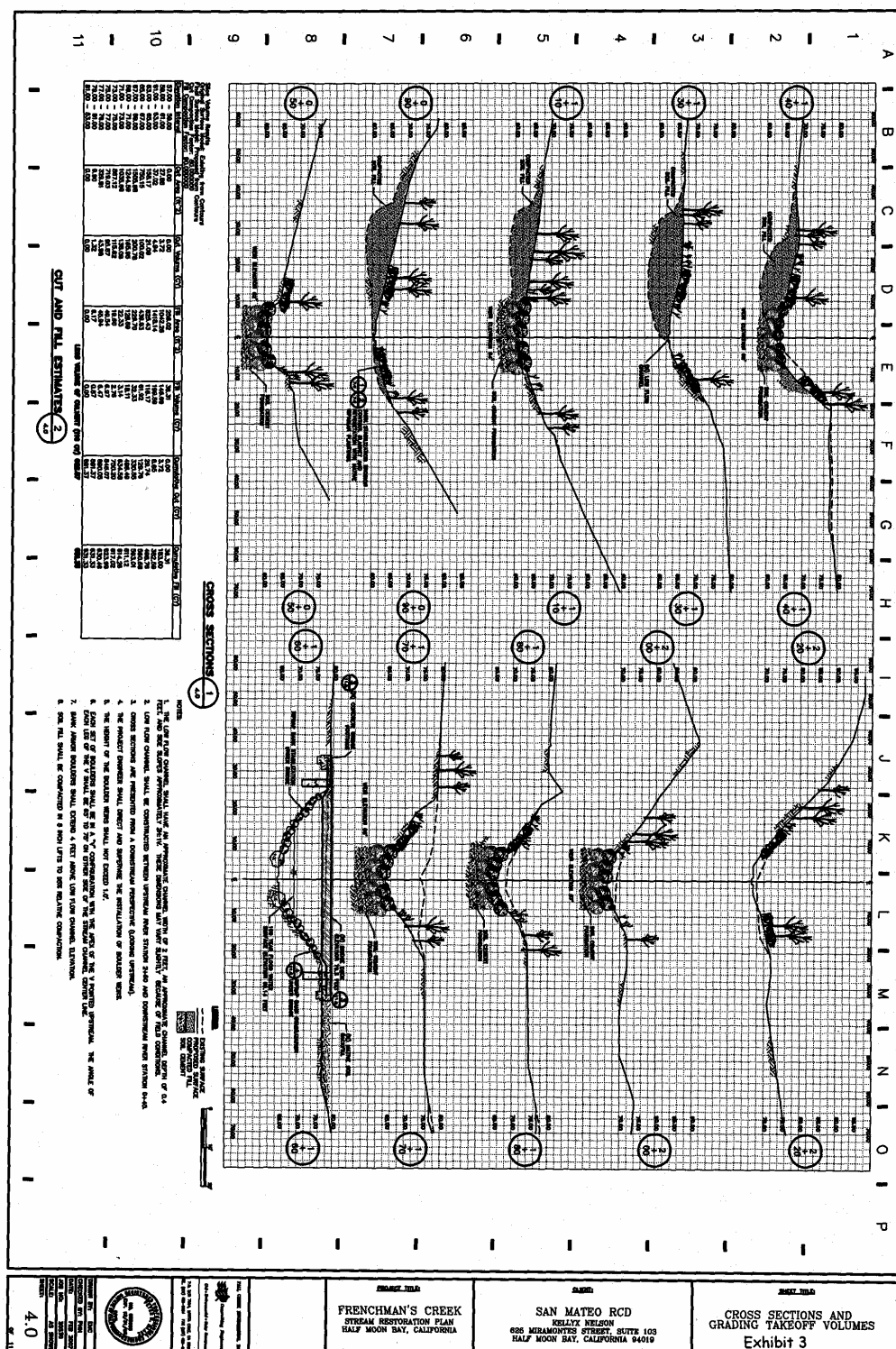


Exhibit 3  
PWP 2-07-04/SMC NOID 1-07  
Page 4 of 11



San Mateo RCD  
Fish Passage Improvement PWP and NOID





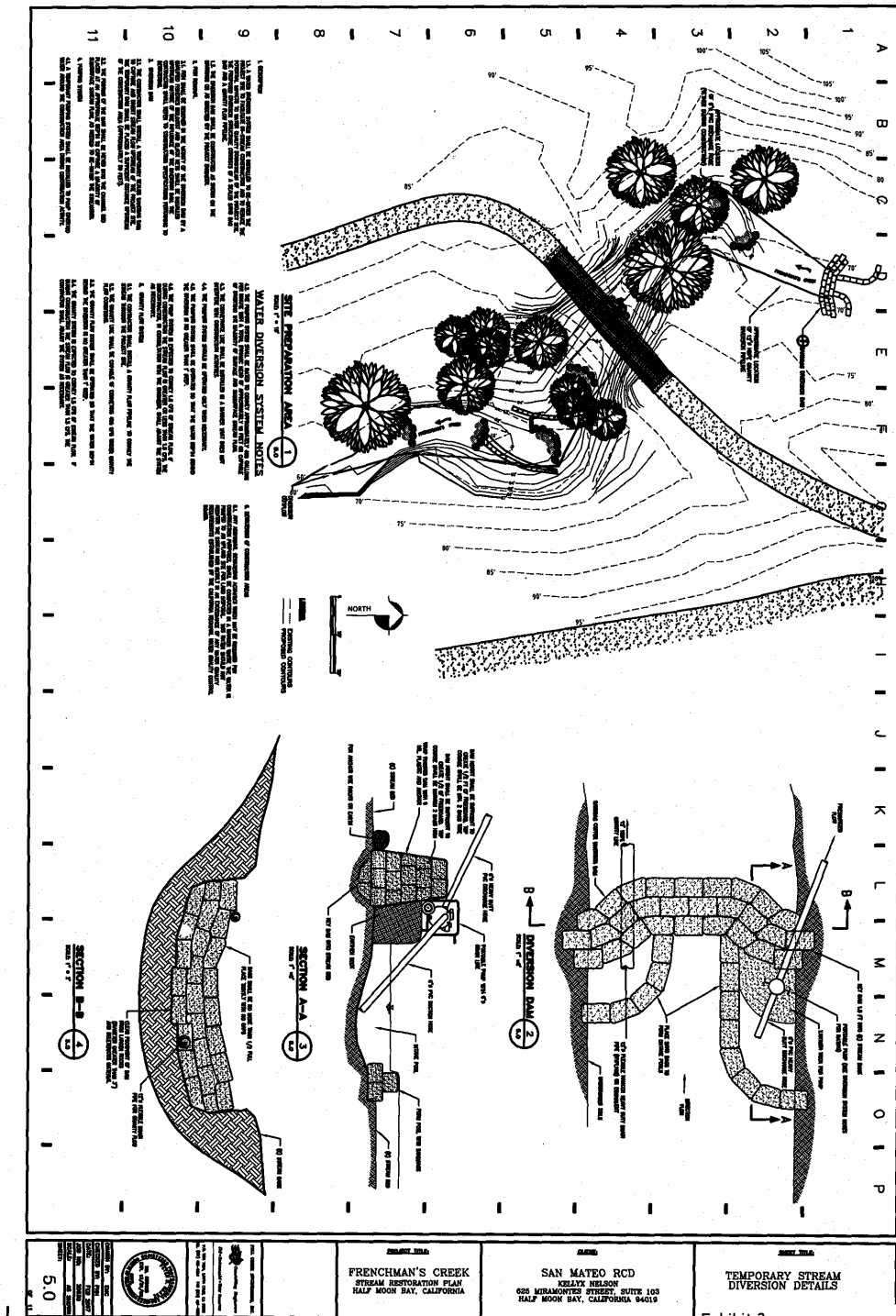
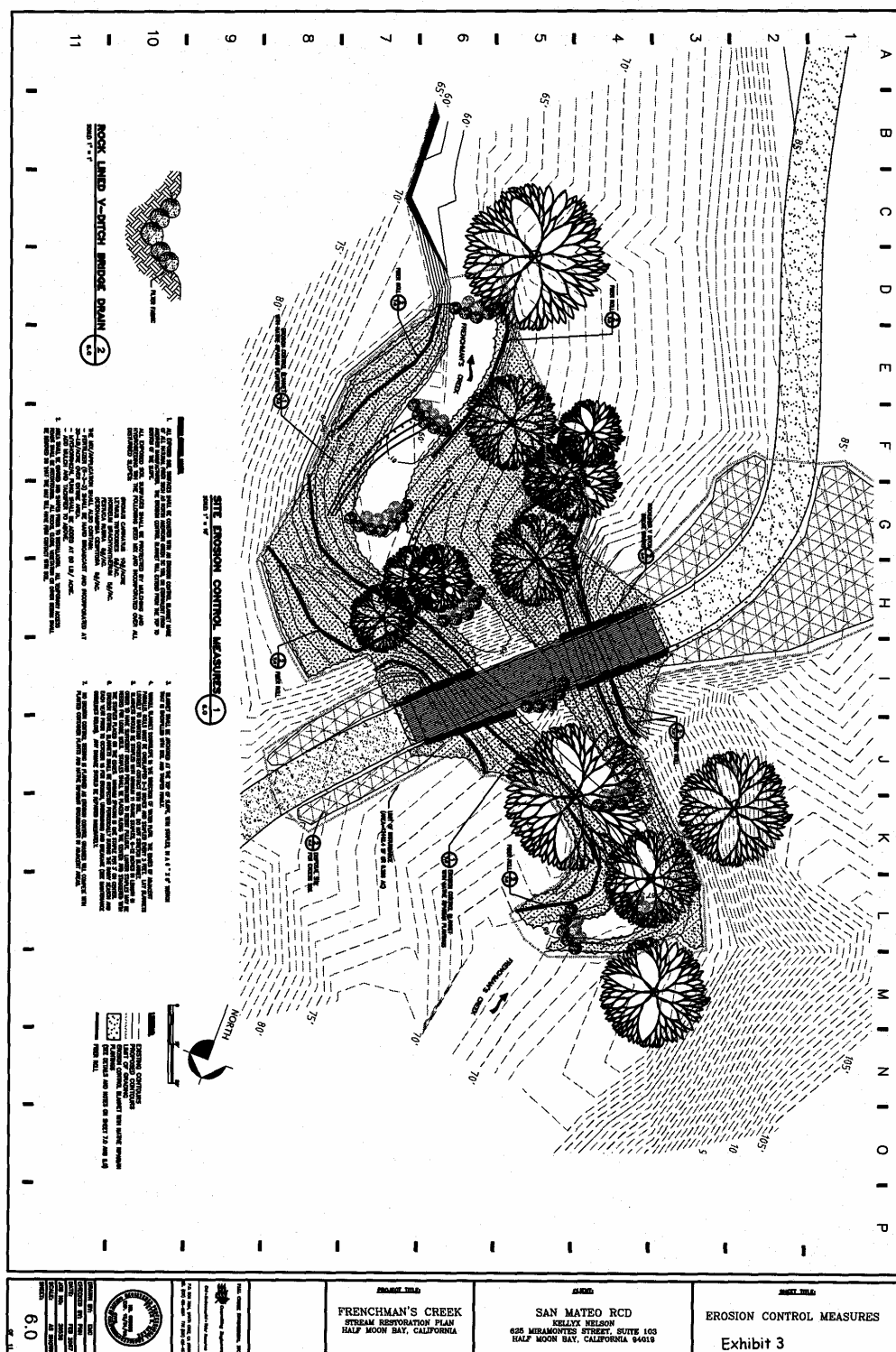
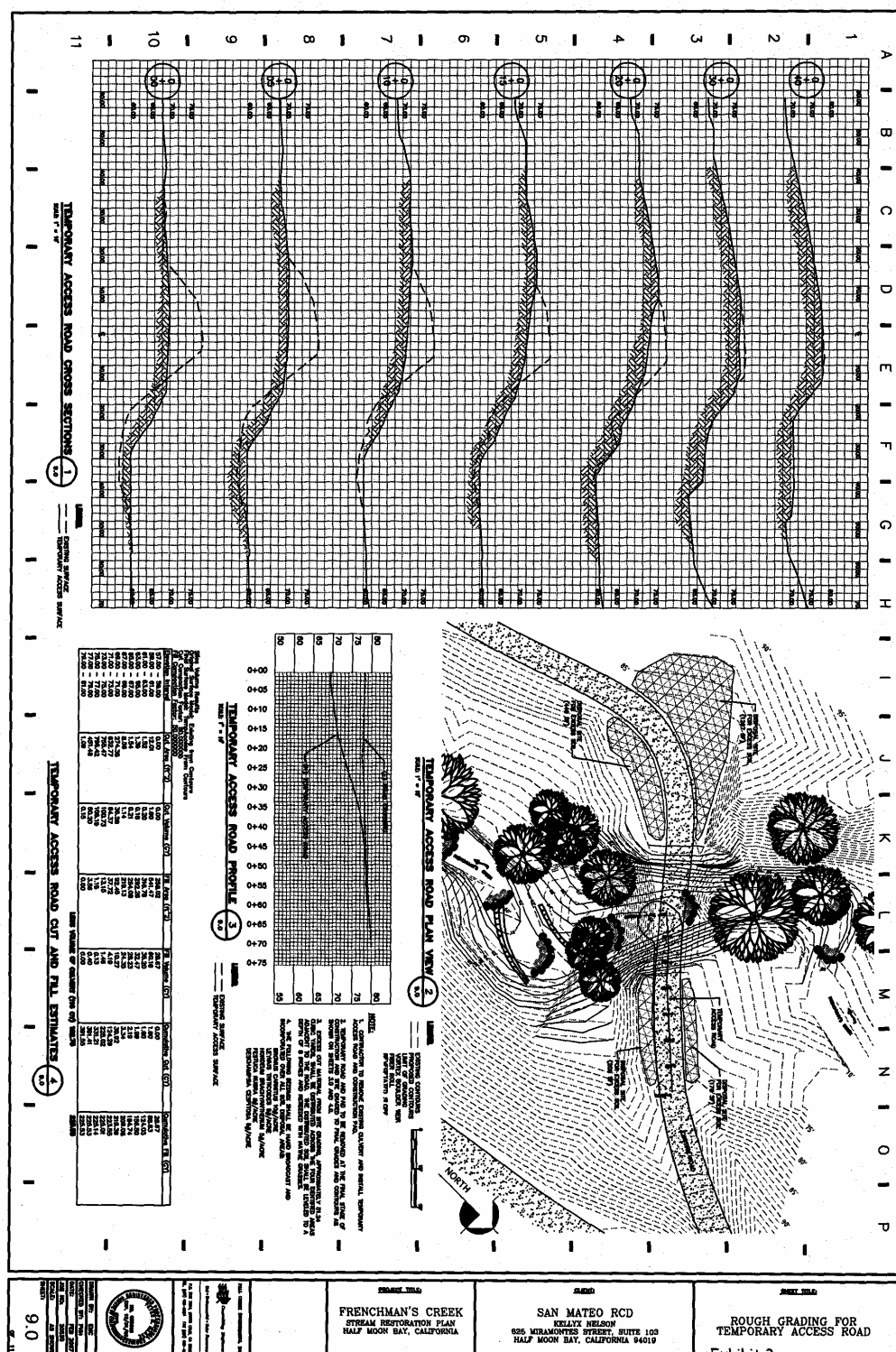
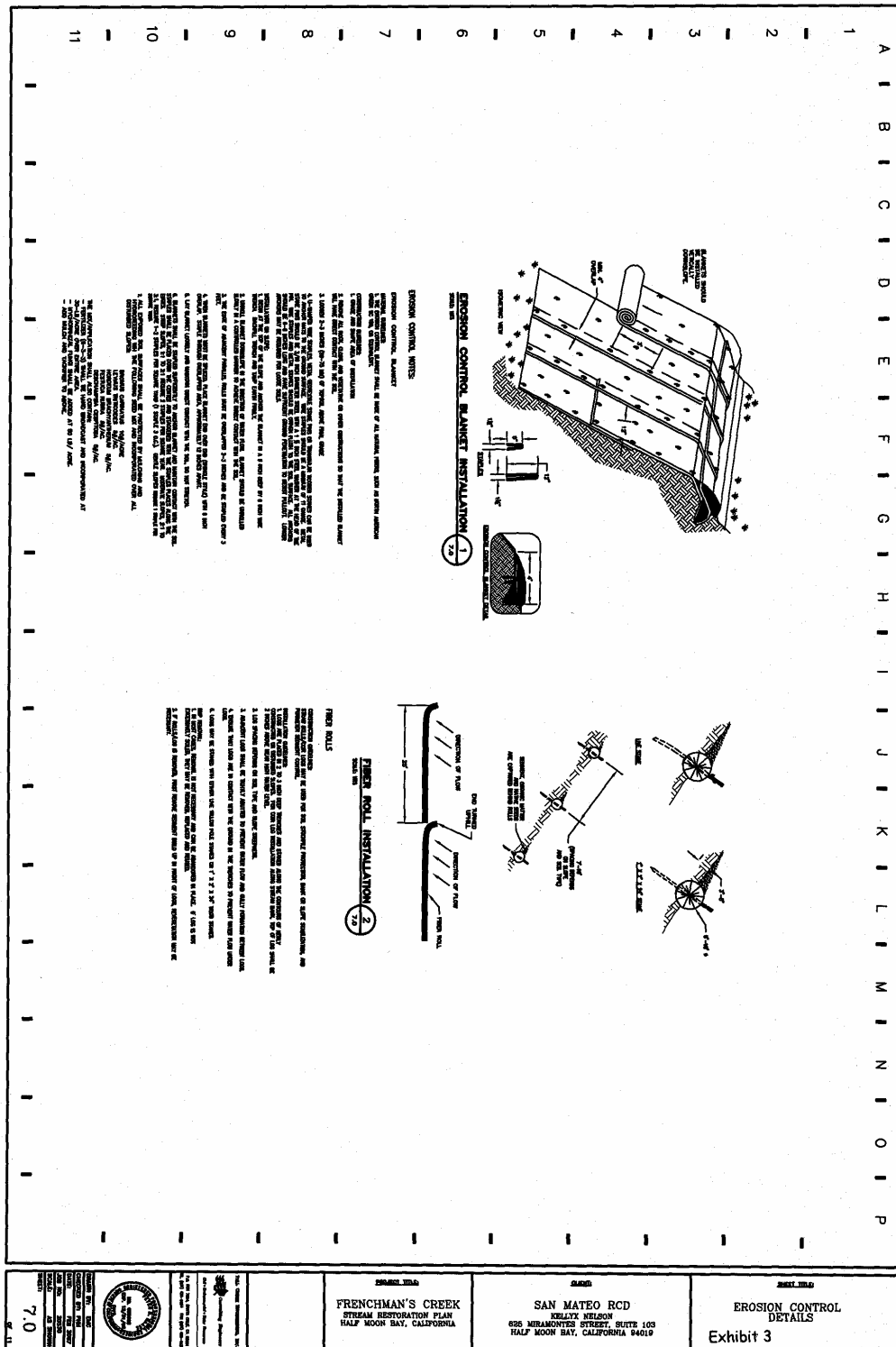
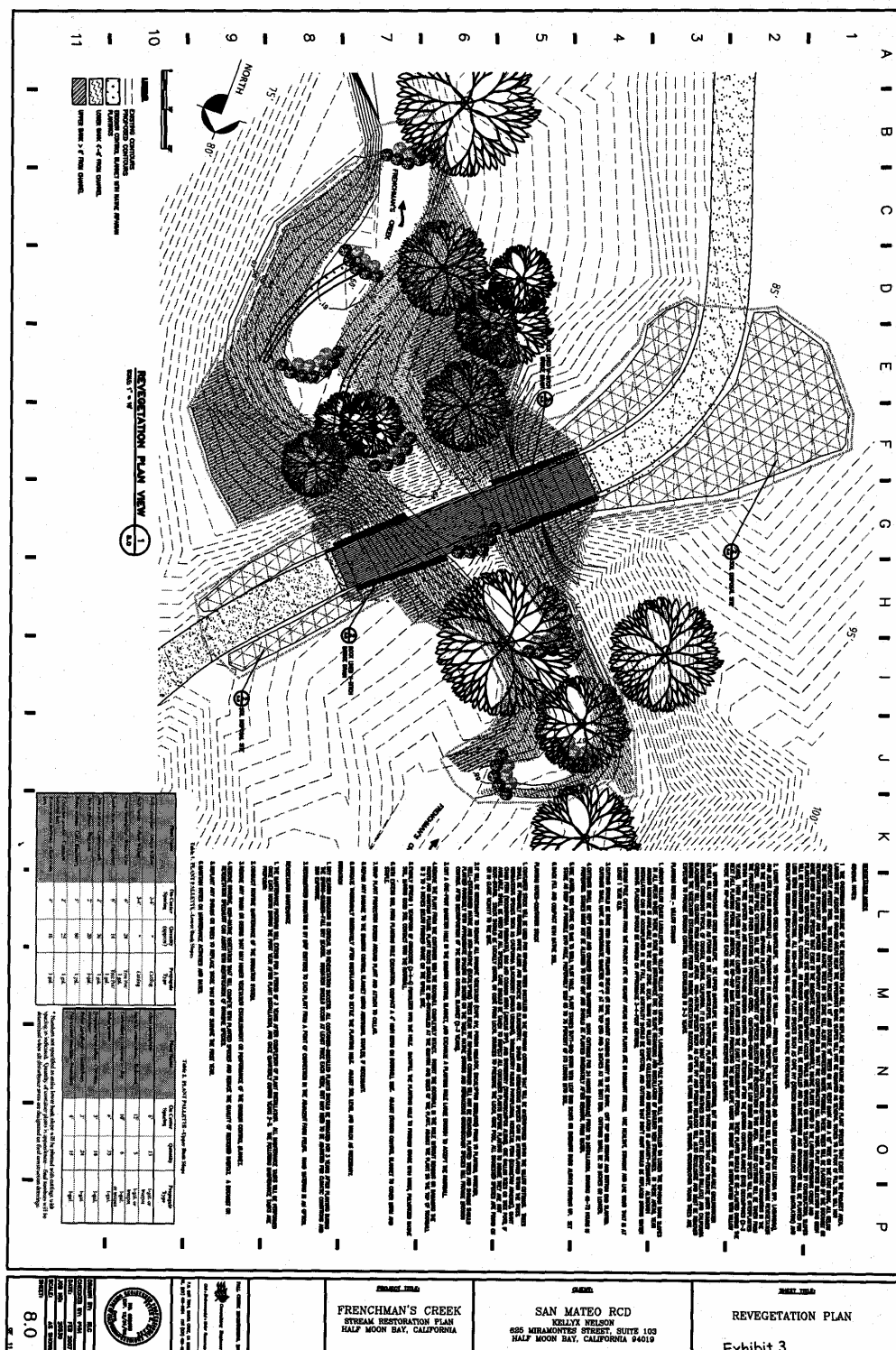


Exhibit 3  
PWP 2-07-04/SMC NOID 1-07  
Page 7 of 11









FROM : SMC\_RESOURCE CONS DISTRICT

PHONE NO. : 650 726 0494

Jun. 12

Exhibit 4. NOID

EXHIBIT NO. 4
APPLICATION NO.
PWP 2-07-04 & SMC NOID 1-07
NOID (Page 1 of 3)

**SAN MATEO COUNTY RESOURCE CONSERVATION DISTRICT**

*helping people protect, conserve and restore natural resources since 1973*

June 11, 2007

YinLan Zhang  
California Coastal Commission  
North Central Coast District Office  
45 Fremont Street, Suite 2000  
San Francisco, CA 94105-2219

**RECEIVED**

JUN 12 2007

CALIFORNIA  
COASTAL COMMISSION

**Subject: Notice of Impending Development for Frenchman's Creek Fish Passage Improvement Project**

Dear Ms. Zhang:

Pursuant to Public Resources Code §30606 and California Coastal Commission Regulations §13358 and §13359, this letter is presented to provide Notice of Impending Development (NOID) for the Frenchmans Creek Fish Passage Improvement Project on Frenchman's Creek in San Mateo County. Such notice must be submitted prior to commencement of development by the public agency proposing a public works project pursuant to an adopted Public Works Plan (PWP).

**Project Description**

The project location is on Frenchman's Creek, approximately two miles upstream, near the City of Half Moon Bay, in San Mateo County. The San Mateo County Resource Conservation District (RCD) intends to improve fish passage on Frenchman's Creek by replacing an existing perched culvert at an agricultural tractor/creek crossing with a clear-span bridge and boulder cross-vane weirs. Current conditions prevent all steelhead migration above the culvert, which effectively eliminates access to the upper 2.1 miles of the creek – the most valuable spawning and rearing habitat within this stream system. When this barrier is removed, fish will have access to about 4.4 miles of the creek, from the ocean to a natural waterfall that blocks passage high in the hills.

Designed in accordance with National Oceanic and Atmospheric Administration (NOAA) and California Department of Fish and Game (DFG) guidelines, the project's work plan includes the following elements:

- Comply with pre-project monitoring requirements.
- Implement plans for listed species removal and water diversion (conditions to be established by agency consultations and DFG streambed alteration permits).
- Provide biological monitoring during construction.
- Remove the existing perched culvert.

625 Miramontes Street, Suite 103 • Half Moon Bay, CA 94019  
ph (650) 712-7765 • fax (650) 726-0494  
[www.sanmateorcd.org](http://www.sanmateorcd.org)



*Notice of Impending Development  
Frenchman's Creek Fish Passage Improvement Project*

*June 11, 2007  
Page 2*

- Install a clear-span bridge 12 feet wide and 65 feet long, sufficient for continued vehicular agricultural access for cultivation and harvest of crops. Current plans call for using a railcar with two spread-footing abutments to build the new bridge, which will be privately owned and used by the agricultural operators and landowners.
- Construct approximately 8 cross-vane boulder weirs to stabilize the channel grade.
- Grade channel banks to design slope.
- Implement re-vegetation measures.
- Comply with post-project monitoring and evaluation requirements.

The proposed project also includes removing and eradicating invasive plant species (mostly Cape ivy) within the half-acre project area. The RCD will re-plant the site with native riparian species.

The proposed project site is approximately 2.3 miles up Frenchman's Creek, where a private, agricultural road traverses fields of row crops. It is a rural area with traffic almost exclusively limited to tractors and other farm vehicles. The creek marks the property line between two owners, and also serves as the boundary between the City of Half Moon Bay and unincorporated San Mateo County.

Frenchman's Creek is a perennial stream located approximately three miles north of the town of Half Moon Bay. It originates on the west slope of the coastal mountains, drains approximately 1,000 acres of watershed and empties directly into the Pacific Ocean. The mouth of Frenchman's Creek is often linked to Pilarcitos Creek to form a small lagoon. Both creeks are closed by sandbar formation typically in late April to late May, reopening after early winter rains and runoff in December.

The creek bed, banks and valley floor are predominately silt and sand (the parent material in this geologic setting). Few spawning, summer rearing or holding areas are evident on the lower valley floor channel areas, but more significant pools and spawning habitat exist at the upper reach of the valley floor, just prior to and after gaining elevation. That valuable spawning and rearing habitat is currently inaccessible due to the culvert that the RCD aims to remove.

Consistency with PWP

In this case, the PWP and the specific project are the same and are receiving concurrent review. As such, the specific project will be carried out pursuant to the proposed PWP that has been submitted to the Commission. This NOID is not effective until the PWP is approved.

FROM : SMC\_RESOURCE CONS DISTRICT

PHONE NO. : 650 726 0494

Jun. 12 2007 12:20PM P3

*Notice of Impending Development  
Frenchman's Creek Fish Passage Improvement Project*

*June 11, 2007  
Page 3*

Environmental Documents

All environmental documents, including a Mitigated Negative Declaration and the PWP application, are available at the Coastal Commission office on 45 Fremont Street, Suite 2000, San Francisco, California 94105 and available for review by the public.

Conclusion

I am confident that you will agree that the proposed project is consistent with the proposed PWP and the purpose of the Coastal Act. Thank you for your time and review of this NOID. Please let me know if any additional materials are needed for your consideration.

Sincerely,



Kellyx Nelson  
Executive Director

Exhibit 5. Amended Project Description

**Amended Project Description  
for Frenchman's Creek Fish Passage Improvement Project**

April 27, 2007

<b>EXHIBIT NO.</b> 5
<b>APPLICATION NO.</b>
PWP 2-07-04 & SMC NOID 1-07
AMENDED PROJECT DESCRIPTION (Page 1 of 11)

**LOCATION**

Frenchman's Creek (approximately two miles upstream), near the City of Half Moon Bay, San Mateo County (Exhibit 1)

**PROJECT SUMMARY**

The San Mateo County Resource Conservation District (RCD) intends to improve fish passage on Frenchman's Creek by replacing an existing perched culvert at an agricultural tractor/creek crossing with a clear-span bridge and boulder cross-vane weirs. Current conditions prevent all steelhead migration above the culvert, which effectively eliminates access to the upper 2.1 miles of the creek – the most valuable spawning and rearing habitat within this stream system. When this barrier is removed, fish will have access to about 4.4 miles of the creek, from the ocean to a natural waterfall that blocks passage high in the hills.

Designed in accordance with National Oceanic and Atmospheric Administration (NOAA), the Fish and Wildlife Service (FWS) and California Department of Fish and Game (DFG) guidelines, the project's work plan includes the following elements:

- Submit and secure all permits.
- Comply with pre-project monitoring requirements.
- Implement plans for listed species removal and water diversion (conditions to be established by agency consultations and DFG streambed alteration permits).
- Provide biological monitoring during construction.
- Remove the existing perched culvert.
- Install a clear-span bridge 12 feet wide and 65 feet long, sufficient for continued vehicular agricultural access for cultivation and harvest of crops. Current plans call for using a railcar with two spread-footing abutments to build the new bridge, which will be privately owned and used by the agricultural operators and landowners.
- Construct approximately 8 cross-vane boulder weirs to stabilize the channel grade.
- Grade channel banks to design slope.
- Implement re-vegetation measures.
- Comply with post-project monitoring and evaluation requirements.

The proposed project also includes removing and eradicating invasive plant species (mostly Cape ivy) within the half-acre project area. The RCD will re-plant the site with native riparian species. This vegetation will be monitored annually for three (3) years, to ensure 75% survival of planted native vegetation. During this period all dead plants will be replaced annually. Success will be based on 75% survival after the third year. If 75% survival is not met, annual monitoring and replanting will continue in two (2) year increments thereafter until 75% survival is met.

**Site Description:**

The proposed project site is approximately 2.3 miles up Frenchman's Creek, where a private, agricultural road traverses fields of row crops. It is a rural area with traffic almost exclusively limited to tractors and other farm vehicles. The creek marks the property line between two owners, and also serves as the boundary between the City of Half Moon Bay and unincorporated San Mateo County.

Frenchman's Creek is a perennial stream located approximately three miles north of the town of Half Moon Bay. It originates on the west slope of the coastal mountains, drains approximately 1,000 acres of watershed and empties directly into the Pacific Ocean. The mouth of Frenchman's Creek is often linked to Pilarcitos Creek to form a small lagoon. Both creeks are closed by sandbar formation typically in late April to late May, reopening after early winter rains and runoff in December.

The creek bed, banks and valley floor are predominately silt and sand (the parent material in this geologic setting). Few spawning, summer rearing or holding areas are evident on the lower valley floor channel areas, but more significant pools and spawning habitat exist at the upper reach of the valley floor, just prior to and after gaining elevation. That valuable spawning and rearing habitat is currently inaccessible due to the culvert that the RCD aims to remove.

Willow and alder trees provide bank stability and solar protection for the full length of the channel. Cape ivy and eucalyptus are invading the lower watershed, but are less present in the upper reaches. About 4.4 miles up the creek, a waterfall provides the final natural barrier to migrating fish.

Land uses in this watershed include public recreation at Half Moon Bay State Beach, day-rental equestrian facilities near the Highway 1 crossing, some residential subdivision in the lower reaches, and row crop agriculture in the middle reach. The upper portion of the watershed remains undisturbed.

Frenchman's Creek has historically supported a sustaining native steelhead population and also contains a population of non-native brown trout (per DFG records and local knowledge). Rare and endangered species known to live in nearby areas include California red-legged frog and San Francisco garter snake.

#### **Project History:**

A culvert was placed along the flow line of Frenchman's Creek in the early to mid-1980s by the agricultural operator in order to move farming equipment from the south side of the valley across the creek to production fields on the north side of the creek. The culvert was placed with permission from DFG, on grade in the channel of the stream. Fill material was placed over the culvert to facilitate the vehicle crossing.

Over a period of years, the culvert has caused a down-cut of the stream bed at the outlet, resulting in a five-foot vertical jump, which is considered by DFG to be a total barrier to

migration of both adults and juveniles. Although the culvert has caused problems for the steelhead migration, it continues to function as a road crossing for the agricultural operations.

This project was identified by the Coastside Creek Restoration Association about eight years ago, which brought it to the attention of the San Mateo County RCD, the San Mateo County Fish and Wildlife Advisory Committee and DFG. After discussions with the landowners and tenant farmer, the RCD included this project in a portfolio of beneficial projects in the district; advocated for its implementation and sought funds to accomplish it.

#### **CALIFORNIA DEPARTMENT OF FISH AND GAME PROGRAM:**

The California Department of Fish and Game (DFG) awarded the RCD a grant in 2003 to remove the culvert and build the new bridge as part of its Fisheries Restoration Grant Program (Program). Mitigated Negative Declaration (MND) for this project was adopted on June 7, 2006 by DFG under the California Environmental Quality Act for the 2006 Program. The Program obtained a Regional General Permit (Corps file number 27922N) with the Army Corps of Engineers on September 9, 2004.

The MND addresses all of the anticipated environmental effects of the funded projects by providing mitigation measures for the various types of projects that would be implemented throughout the state. This includes standard protocols for avoiding impacts to species of concern, including State and Federally-listed threatened and endangered species.

DFG found that all potentially significant impacts associated with the funded projects, including the Frenchman's Creek project, would be avoided or mitigated below a level of significance under CEQA. DFG approved the MND and filed a Notice of Determination on June 7, 2006.

#### **LOCAL NOTICE:**

As part of CEQA, DFG printed notices to local newspapers in every county affected by the Program. The RCD Board of Directors publicly voted to enter into the initial agreement with DFG. Additionally, project updates are provided monthly in the publicly noticed meetings of the RCD Board of Directors.

#### **AREA OF IMPACT:**

The existing perched culvert will be replaced with a bridge that is 12 feet wide and 65 feet long. There will be 8 cross-vane boulder weirs to stabilize the channel grade. The staging area for construction will be located on the portion of the field above the project site and NOT adjacent to the stream. No staging will occur adjacent to the stream. It should be noted that there is not sufficient room adjacent to the stream for equipment and/or materials as they would get in the way of construction if staged adjacent to the creek. It should also be noted that there are no paved roads in the project vicinity, all roads are dirt.

Linear feet of stream restored: 220  
Cubic yards of excavation: 682.57  
Cubic yards of imported fill: 632.33  
Total area of disturbance not including soil dispersal and revegetation: 0.208 acres  
Total area of disturbance including soil dispersal and revegetation: 0.29 acres

#### **DETAILED DESCRIPTION OF WORK**

A water diversion system shall be installed to dewater the project site to facilitate in-stream construction and to reduce the potential impacts to water quality downstream of the project site. The proposed diversion structure consists of a sealed sand bag dam and a gravity flow pipeline. Fish shall be removed in the vicinity of the diversion dam by a qualified fisheries biologist and block nets shall be installed upstream outside the influence of the diversion dam. Additional avoidance and mitigation activities will be implemented as described below.

The Project Engineer shall direct and supervise construction. Biological monitors will be present as described in avoidance and mitigation activities below. A backhoe and excavator will be the only equipment used in the creek other than hand tools. Equipment will be staged adjacent to the agricultural fields out of riparian zone of the project.

An excavator will be used to remove the soil envelope around the culvert. The soil will be stockpiled in an upland site over one hundred feet from the stream. Once the culvert is fully exposed it will be removed with a backhoe and a chain or cable, likely in pieces. A ramp will be built for temporary equipment access into the channel. Rough grading will then be done by grubbing and clearing of the project area with hand tools. Once the site is clear an excavator and possibly a backhoe will grade and shape the channel and banks to the final grades. A backhoe will be used to build the rock weirs. Once the weirs are in place, they will be set, grading will be finished, and the channel will be backfilled with engineered aggregate (river stone).

Once the equipment comes out of the channel, a backhoe will be used to excavate the holes for the abutments. The abutments will be spread-foot (not drilled), board-formed, cast in place concrete. Approximately 10 yards will be excavated for the abutments and no fill will be required because they will be poured to grade. After the abutments have cured for 21 days, a railcar will be placed by crane and bolted to the abutment.

Erosion control measures will be implemented on the channel work during construction of bridge abutments. Soil will remain on site and be reseeded with native vegetation. Excess cut material from site grading (~51.24 cubic yards) shall be distributed across the four identified areas adjacent to the road. The distributed soils shall be leveled to a depth of 8 inches and reseeded with native vegetation. As described above, the project will be monitored for at least three (3) years post construction to assure soil is stabilized, erosion control is effective, and native plants have become established.

#### **MITIGATION MEASURES FOR PROTECTED SPECIES**

##### **General Avoidance and Minimization Measures:**

The project will not have a substantial adverse effect on any riparian habitat or other sensitive natural communities identified in local or regional plans, policies and regulations, or by the California Department of Fish and Game or U. S. Fish and Wildlife Service. Such an impact will not occur because the project actions are designed to correct past habitat degradation and restore and enhance riparian habitat and associated upland habitats.

- 1) The project will not have a substantial adverse effect on Federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means. The project actions will have either no effect on wetlands or will be beneficial to wetlands.
- 2) The project will not substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. The project will enhance the movement of anadromous fish by the replacement or removal of culverts and bridges that are barriers to fish migration.
- 3) The project will not conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. Such an impact will not occur because project actions are designed to restore and enhance biological resources. Some minor disturbance of grasses and shrubs will occur where stream structures are keyed into the stream banks. Care will be taken not to disturb any mature trees. Riparian vegetation will be reestablished where construction activities disturb existing plants, and additional native plants will be planted to enhance the riparian vegetation.
- 4) The project will not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan. Such a conflict will not occur because the project restoration actions will not have a significant adverse impact on any species or habitat. Project actions are designed to restore the natural character of the fish and wildlife habitat at the project work sites. The project specifically supports the California Salmon, Steelhead Trout and Anadromous Fisheries Program Act (Fish and Game Code Section 6900 et. seq.)
- 5) Project Timing. To avoid impacts to aquatic habitat the activities carried out in the restoration program typically occur during the summer dry season.
  - a) Work around streams is restricted to the period of June 15 through November 1 or the first rainfall. This is to take advantage of low stream flow and avoid the spawning and egg/alevin incubation period of salmon and steelhead.
  - b) The permissible work window for individual work sites will be further constrained as necessary to avoid the nesting or breeding seasons of birds and terrestrial animals. At most sites with potential for raptor (including northern spotted owls) and migratory bird nesting, if work is conditioned to start after July 31, potential impacts will be avoided and no surveys will be required. For work sites that might contain nesting marbled murrelets, the starting date will be September 15 in the absence of surveys. The work window at individual work sites could be advanced if surveys determine that nesting birds will not be impacted.
- 6) Any equipment entering the active stream (for example, in the process of

installing a coffer dam) shall be preceded by an individual on foot to displace wildlife and prevent them from being crushed.

7) If any wildlife is encountered during the course of construction, said wildlife shall be allowed to leave the construction area unharmed, and shall be flushed, hazed, or herded in a safe direction away from the project site.

8) Measures that will be used at the work site to prevent take or injury to any individual western pond turtles that could occur on the site overlap directly with measures for the California Red-legged Frog and San Francisco Garter Snake that will be in place, described in detail below. The contractor shall ensure that the approved exclusion measures are in place prior to construction. Any turtles found within the exclusion zone shall be moved to a safe location upstream or downstream of the work site, prior to construction.

9) All habitat improvements shall be done in accordance with techniques in the *California Salmonid Stream Habitat Restoration Manual*. The most current version of the manual is available at: <http://www.dfg.ca.gov/nafwb/index.html>

**Avoidance and Minimization of Impacts to Rare Plants:**

1) DFG will survey all work sites for rare plants prior to any ground disturbing activities. Rare plant surveys will be conducted following the "Guidelines for Assessing the Effects of Proposed Developments on Rare and Endangered Plants and Plant Communities" (DFG, 2000). These guidelines are available on the web at:

[http://www.dfg.ca.gov/hcpb/species/stds\\_gdl/survmonitr.shtml](http://www.dfg.ca.gov/hcpb/species/stds_gdl/survmonitr.shtml).

2) If any special status plant species are identified at a work site, DFG will require one or more of the following protective measures to be implemented before work can proceed:

- a) Fencing to prevent accidental disturbance of rare plants during construction,
- b) On-site monitoring by a qualified biologist during construction to assure that rare plants are not disturbed, and
- c) Redesign of proposed work to avoid disturbance of rare plants.

**Avoidance and Minimization Measures for Coho salmon (*Oncorhynchus kisutch* and Steelhead (*Oncorhynchus mykiss*):**

While all of the work proposed under this program will enhance habitat for one or more of these species, 67 of the 75 work sites proposed as part of the 2006 grants program will involve instream work in their habitat (Frenchman's Creek Fish Passage Improvement is one of these 67 projects). In order to avoid any potential for negative impacts to these species the following measures will be implemented:

- 1) Project work within the wetted stream shall be limited to the period between June 15 and November 1, or the first significant fall rainfall. This is to take advantage of low stream flows and to avoid the spawning and egg/alevin incubation period of salmon and steelhead. Whenever possible, the work period at individual sites shall be further limited to entirely avoid periods when salmonids are present (for example, in a seasonal creek, work will be confined to the period when the stream is dry).
- 2) No heavy equipment shall operate in the live stream, except as may be necessary to construct coffer dams to divert stream flow and isolate the work site.



- 3) Work must be performed in isolation from the flowing stream. If there is any flow when the work is done, the operator shall construct coffer dams upstream and downstream of the excavation site and divert all flow from upstream of the upstream dam to downstream of the downstream dam. The coffer dams may be constructed with clean river gravel or sand bags, and may be sealed with sheet plastic. Sand bags and any sheet plastic shall be removed from the stream upon project completion. Clean river gravel may be left in the stream, but the coffer dams must be breached to return the stream flow to its natural channel.
- 4) For minor actions, where the disturbance to construct coffer dams to isolate the work site would be greater than to complete the action (for example, placement of a single boulder cluster), measures will be put in place immediately downstream of the work site to capture suspended sediment. This may include installation of silt catchment fences across the stream, or placement of a filter berm of clean river gravel. Silt fences and other nonnative materials will be removed from the stream following completion of the activity. Gravel berms may be left in place after breaching, provided they do not impede the stream flow.
- 5) If it is necessary to divert flow around the work site, either by pump or by gravity flow, the suction end of the intake pipe shall be fitted with fish screens meeting DFG and NMFS criteria to prevent entrainment or impingement of small fish. Any turbid water pumped from the work site itself to maintain it in a dewatered state shall be disposed of in an upland location where it will not drain directly into any stream channel.
- 6) Any disturbed banks shall be fully restored upon completion of construction. Revegetation shall be done using native species. Planting techniques can include seed casting, hydroseeding, or live planting methods using the
- 7) Suitable large woody debris removed from fish passage barriers that is not used for habitat enhancement, shall be left within the riparian zone so as to provide a source for future recruitment of wood into the stream.
- 8) Measures shall be taken to minimize harm and mortality to listed salmonids resulting from fish relocation and dewatering activities:
  - a) Fish relocation and dewatering activities shall only occur between June 15 and November 1 of each year.
  - b) DFG shall minimize the amount of wetted stream channel that is dewatered at each individual project site to the fullest extent possible.
  - c) All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service *Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act*, June 2000.
- 9) If for some reason these mitigation measures cannot be implemented, or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to anadromous salmonids or their habitat, then activity at that work site will be discontinued.

**Avoidance and Minimization for San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*):**

The project site is within the known range of the San Francisco garter snake (*Thamnophis sirtalis tetrataenia*), a species listed as 'Endangered' by both State and Federal governments and additionally considered as 'Fully Protected' pursuant to Section 5050 of the Fish and Game Code. Fully Protected animals may not be taken for any purpose, except scientific studies and actions

which can be considered wholly recovery for that species. In order to ensure no take occurs, the following conditions must be followed:

- 1) All work must be observed by a qualified biological monitor. The monitor must either be approved by DFG and the United States Fish and Wildlife Service. If work will take place at more than one location, each area must have at least one monitor. The standard that is to be met is that the number of monitors present in all parts of each work area must be sufficient to ensure that all of each area can be observed.
- 2) Prior to the commencement of work each day, the monitor or monitors must survey the work area to ensure no SFGS or CRLF are in the vicinity.
- 3) All vegetation must be removed by hand. Chain saws are allowed, but no machinery that disturbs the ground surface or travels along the ground surface may be used until, enough vegetation has been removed so that the ground is clearly visible.
- 4) Surface streets and paved areas shall be used to the greatest extent practicable for staging, storage and parking. If not practicable, a staging area should be selected and cleared under the supervision of the monitor or monitors. All off street parking, storage or staging shall be confined to this area.
- 5) Any vehicle or material that has been stationary for more than 15 minutes anywhere in the work area must be checked, by the monitor for the presence of SFGS or CRLF prior to it moving.
- 6) All workers on the job, including subs and new workers, must receive a short training from one of the monitors. The training should identify the special status species with the potential to be present, tell how to recognize them and what to do if they are sighted. All snake sightings should be considered SFGS until confirmed one way or the other by the monitor. All workers should clearly understand what actions are to be taken if a snake is found in the work area.
- 7) If a snake is sighted in the work area, any actions that could result in harm to the snake must cease until the monitor identifies the snake. If the snake is not a SFGS, all work can recommence once the snake is removed from the area. If the snake is a SFGS, all work on the project must cease until DFG and USFWS are contacted.

**Avoidance and Minimization Measures for California red-legged frog (*Rana aurora draytonii*):**

Seven of the work sites proposed as part of the 2006 grants program are within potential habitat for the California red-legged frogs (CRLF) (Appendix A). Proposed activities will not remove or degrade CRLF habitat; however, precautions will be required at this site to avoid the potential for take of CRLF while using heavy equipment at these sites. The potential for impacts to CRLF will be mitigated by complying with all of the mandatory terms and conditions associated with incidental take authorized by the U. S. Fish and Wildlife Service, Biological Opinion dated August 17, 2004 and August 13, 2004. DFG proposes to implement the following measures to minimize adverse effects to the CRLF and its habitat:

- 1) At least 15 days prior to the onset of activities, the DFG will submit the names(s) and credentials of biologists who would conduct activities specified in the following measures. No project activities will begin until the DFG has received written approval from the Service that the biologist(s) is qualified to conduct the work.

- 2) A Service-approved biologist will survey the work site at least two weeks before the onset of activities. If red-legged frogs are found in the project area and these individuals are likely to be killed or injured by work activities, the Service-approved biologist will allow sufficient time to move them from the site before work activities resume. Only Service-approved biologists will participate in activities with the capture, handling, and monitoring of red-legged frogs.
- 3) Before any construction activities begin on a project, a Service-approved biologist will conduct a training session for all construction personnel. At a minimum, the training shall include a description of the red-legged frog and its habitat, the importance of the red-legged frog and its habitat, the general measures that are being implemented to conserve the red-legged frog as they relate to the project, and the boundaries within which the project may be accomplished. Brochures, books and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.
- 4) A Service-approved biologist shall be present at the work site until such time as removal of red-legged frogs, instruction of workers, and habitat disturbance has been completed. The Service-approved biologist shall have the authority to halt any action that might result in impacts that exceed the levels anticipated by the Corps and Service during review of the proposed action. If work is stopped, the Corps and the Service shall be notified immediately by the Service-approved biologist or on-site biological monitor.
- 5) During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.
- 6) All fueling and maintenance of vehicles and other equipment and staging areas will occur at least 65 feet from any riparian habitat or water body. The Corps and the DFG will ensure contamination of habitat does not occur during such operations. Prior to the onset of work, the DFG will ensure that the contractor has prepared a plan to allow a prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
- 7) A Service-approved biologist will ensure that the spread or introduction of invasive exotic plant species is avoided to the maximum extent possible. Areas disturbed by project activities will be restored and planted with native plants.
- 8) The number of access routes, number and size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal. Routes and boundaries will be clearly demarcated.
- 9) Ground disturbing activities in potential red-legged frog habitat will be restricted to the period between July 1 and October 15.
- 10) To control erosion during and after project implementation, DFG will implement best management practices, as identified by the appropriate Regional Water Quality Control Board.
- 11) If a work site is to be temporarily dewatered by pumping, intakes will be completely screened with wire mesh not larger than 0.2 inch to prevent redlegged frogs from entering the pump system. Water will be released or pumped downstream at an appropriate rate to maintain down stream flows during construction activities and reduce the creation of ponded water. Upon completion of construction activities, any barriers to flow will be removed in a manner that would allow flow to resume with the least disturbance to the substrate.
- 12) A Service-approved biologist will permanently remove from the project area, any individuals of exotic species, such as bullfrogs (*Rana catesbiana*),

centrarchid fishes, and non-native crayfish to the maximum extent possible. The biologist will have the responsibility to ensure that their activities are in compliance with the Fish and Game Code.

13) Prior to the onset of any project-related activities, the approved biologist must identify appropriate areas to receive red-legged frog adults and tadpoles from the project areas. These areas must be in proximity to the capture site, contain suitable habitat, not be affected by project activities, and be free of exotic predatory species (ie. bullfrogs, crayfish) to the best of the approved biologist's knowledge.

14) If red-legged frogs are found and these individuals are likely to be killed or injured by work activities, the Service-approved biologists must be allowed sufficient time to move them from the site before work activities resume. The Service-approved biologist must relocate the red-legged frogs the shortest distance possible to one of the predetermined areas. The Service-approved biologist must maintain detailed records of any individuals that are moved (eg., size, coloration, any distinguishing features, photographs (digital preferred) to assist in determining whether translocated animals are returning to the point of capture. Only red-legged frogs that are at risk of injury or death by project activities may be moved.

15) Biologists who handle red-legged frogs must ensure that their activities do not transmit diseases. To ensure that diseases are not conveyed between worksites by the Service-approved biologist, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force must be followed at all times.

**Avoidance and Minimization Measure for Impact to Water Quality:**

- 1) Work shall be conducted during the period of lowest flow.
- 2) Work shall be performed in isolation from flowing water. If there is any flow when the work is done, the contractor shall construct coffer dams upstream and downstream of the excavation site and divert all flow from upstream of the upstream dam to downstream of the downstream dam. The coffer dams may be constructed with clean river gravel or sand bags, and may be sealed with sheet plastic. Sand bags and any sheet plastic shall be removed from the stream upon project completion. Clean river gravel may be left in the stream, but the coffer dams must be breached to return the stream flow to its natural channel.
- 3) For minor actions, where the disturbance to construct coffer dams to isolate the work site would be greater than to complete the action (for example, placement of a single boulder cluster), then measures will be put in place immediately downstream of the work site to capture suspended sediment. This may include installation of silt catchment fences across the stream, or placement of filter berm of clean river gravel. Silt fences and other non-native materials will be removed from the stream following completion of the activity. Gravel berms may be left in place after breaching, provided they do not impede the stream flow.
- 4) Before work is allowed to proceed at a site, DFG will inspect the site to assure that turbidity control measures are in place.

**Avoidance and Minimization Measures for Equipment Related Impacts:**

- 1) The contractor shall have dependable radio or phone communication on-site to be able to report any accidents or fire that might occur.

- 2) Heavy equipment that will be used in these activities will be in good condition and will be inspected for leakage of coolant and petroleum products and repaired, if necessary, before work is started.
- 3) Work with heavy equipment will be performed in isolation from flowing water, except as may be necessary to construct coffer dams to divert stream flow and isolate the work site.
- 4) All equipment operators will be trained in the procedures to be taken should an accident occur. Prior to the onset of work, DFG shall ensure that the contractor has prepared a plan to allow a prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
- 5) All activities performed in or near a stream will have absorbent materials designed for spill containment and cleanup at the activity site for use in case of an accidental spill.
- 6) All fueling and maintenance of vehicles and other equipment shall be located at least 20 meters from any riparian habitat or water body. The contractor shall ensure contamination of habitat does not occur during such operations.
- 7) Location of staging/storage areas for equipment, materials, fuels, lubricants, and solvents, will be located outside of the stream's high water channel and associated riparian area. The number of access routes, number and size of staging areas, and the total area of the work site activity shall be limited to the minimum necessary to complete the restoration action. To avoid contamination of habitat during restoration activities, trash will be contained, removed and disposed of throughout the project.
- 8) Stationary equipment such as motors, pumps, generators, compressors, and welders, located within the dry portion of the stream channel or adjacent to the stream, will be positioned over drip-pans.
- 9) All internal combustion engines shall be fitted with spark arrestors.
- 10) The contractor shall have an appropriate fire extinguisher(s) and fire fighting tools (shovel and axe at a minimum) present at all times when there is a risk of fire.
- 11) Vehicles shall not be parked in tall grass or any other location where heat from the exhaust system could ignite a fire.

Exhibit 6. Engineering Report

EXHIBIT NO. 6
APPLICATION NO.
PWP 2-07-04 & SMC NOID 1-07
ENGINEERING REPORT (page 1 of 22)

**ENGINEERING REPORT**  
*for*  
**FRENCHMAN'S CREEK**  
**STREAM RESTORATION PROJECT**  
  
**Half Moon Bay, California**

**Prepared for:**

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February 2007



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- Appendix A – HEC-HMS Model Results
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- Appendix C – Boulder Sizing Calculations



## 1. INTRODUCTION

Frenchmen's Creek is a perennial coastal stream located in Half Moon Bay on the Central Coast of California. The stream is approximately 4.1 miles long and drains directly to the Pacific Ocean. The stream and riparian corridor are relatively undisturbed and intact, providing good habitat for coast steelhead and other riparian wildlife. The project site is surrounded by cropland used for production of vegetables and cut flowers, and the stream and adjacent lands are privately owned.

Approximately 30 years ago, the owners installed a six-foot diameter by 42-foot long culvert to provide a farm road crossing across Frenchman's Creek. Presently, the culvert is perched, and the invert elevation of the culvert outlet is approximately nine feet above the bed of the channel. The condition has created a barrier to the passage of both juvenile and adult steelhead and does not allow fish to access the upper one and half mile of stream course. Figure 1 shows a photo of the existing culvert. Of the four miles of river channel on Frenchman's Creek, the proposed project would restore access to approximately 2 miles of Frenchman's Creek and approximately 2 miles of channel in upstream tributaries.

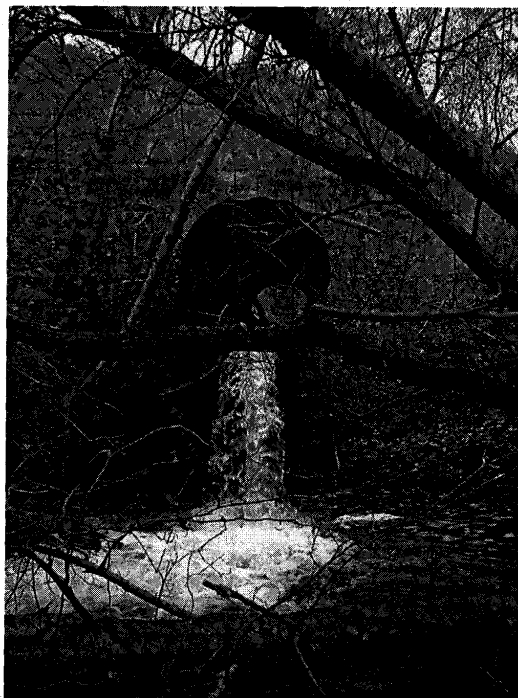


Figure 1. Perched Culvert on Frenchmen's Creek

Fall Creek Engineering, Inc. and John Gilchrist and Associates have been retained to develop plans to remove the perched culvert at the project site and redesign the stream channel to allow year round fish passage.

The consulting team proposes replacing the existing culvert with a new clear span bridge created from a rail car bridge deck. The project includes several biotechnical stream channel and bank stabilization measures to restore the channel to a stable, non-eroding condition. Eight one foot high boulder step-pool weirs would be installed to provide grade control and facilitate step-pool formation to enhance fish passage in the project reach. The proposed project also includes installing channel toe and bank stabilization measures, such as vegetated riprap. Lastly, the project includes post-construction erosion control measures and revegetation of the site with native riparian and upland plants.

To complete the proposed restoration plans several tasks were undertaken, including: a topographic survey of the site; a hydrologic and hydraulic analysis of the stream; and engineering design calculations for proposed structural improvements. A summary and the results of the engineering work completed to support the accompanying plans are presented in this engineering report.

## **2. TOPOGRAPHIC SURVEY**

As the initial task, the consulting team performed a topographic survey of the study area. The basis of elevation for the topographic survey was established using a assume vertical datum elevation of 100' established on a set spike control point along Frenchman's Creek Road. A copy of the existing topographic survey, including the basis of elevation and bearing is presented on Sheet 2.0 of the accompanying plans.

## **3. HYDROLOGY AND HYDRAULIC ANALYSIS**

Frenchman's Creek is an ungaged perennial steam with no available stream flow data. Therefore, a hydrologic and hydraulic analysis was conducted to estimate stream flow, water surface elevations, stream velocity and shear for a series of historical and design storm events. The following sections provide a description and a summary of the results of the analysis.

### **3.1 HYDROLOGY**

As an initial task, historical hydrologic data was compiled and analyzed to determine stream flow conditions in Frenchman's Creek. The analysis was required to evaluate existing and restored conditions under a range of flows including, low and high fish passage flow conditions using criteria established by the National Marine Fishery Service (NMFS).

A hydrologic analysis was conducted to estimate flow values on Frenchman's Creek. The United States Geological Survey (USGS) does not maintain a gage on Frenchman's Creek, and no other flow data is available. Therefore, a number of methods were used to estimate stream flow in Frenchman's Creek for various rainfall events. Stream flow was estimated from three sources: (1) a rainfall-runoff analysis for Frenchman's Creek using the U.S. Army Corps of Engineers HEC-Hydrologic Modeling System, (2) using a paired watershed analysis comparing stream flow values by unit watershed area from San Pedro and Pescadero Creeks, and (3) USGS Water Resources regional regression equations for the central coast region. These methods are described in more detail below.

### 3.1.1 Runoff Analysis

A rainfall-runoff analysis was conducted to estimate the peak discharge in Frenchman's Creek. The U.S. Corps of Engineers Hydrologic Engineering Center-Hydraulic Modeling System (HEC-HMS) was employed to model the rainfall and runoff conditions in the watershed. HEC-HMS calculates runoff by computing the volume of water that is intercepted, infiltrated, stored, evaporated, or transpired and subtracting it from the precipitation. The sum of these parameters, with the exception of precipitation, is collectively referred to as losses.

The runoff volume computations were conducted employing the Initial/Constant Loss Rate Method and SCS Unit Hydrograph (UH) Model for transformation of direct runoff and an estimation of Constant Monthly Baseflow. The Initial/Constant Loss Rate Method estimates the volume of precipitation initially lost as interception, infiltration, depression storage and evaporation and assumes a combined constant loss rate for these parameters after the initial losses. The SCS UH Model is an empirical model, which "transforms" excess precipitation into peak runoff and calculates the volume of runoff over a specified time period. The SCS UH model is based upon average unit hydrographs derived from gaged rainfall and runoff events for a large number of small agricultural watersheds throughout the US.

Input data required to conduct the modeling, include: (1) sub-basin information; (2) reach information; and (3) rainfall data. Constant Monthly Baseflow was estimated from recorded low flows in Pescadero Creek correlated to Frenchman's Creek by watershed area. The completed rainfall-runoff model estimated peak stream flows at the project location for the 2-, 5-, 10-, 25-, 50-, and 100-year storm events. The results of the rainfall-runoff analysis, including HEC-HMS modeling data are presented in Appendix A.

Information from the rainfall-runoff analysis was then used in the recurrence interval calculations.

### 3.1.2 Sub-basin Information

The watershed was divided into four separate sub-basins for the purpose of modeling. The top of the watershed was divided into two sub-basins, one for Lock's Creek, a

tributary stream and the second for the mainstem of Frenchman's Creek. The bottom portion of the watershed was divided into contributions from direct drainage from the right and left bank. A schematic for the model is shown in Figure 2.

The initial and constant method was selected to account for loss of precipitation on pervious surfaces. The initial loss factor accounts for the amount of precipitation lost through interception and depression storage. All other losses are accounted for with a constant loss rate. No precipitation occurs within the model until the initial loss is satisfied. (A summary of watershed data entered into the HEC-HMS model is presented in Table 1.

Table 1. Sub-Basin Information

Basin	Area (square miles)	Initial Loss (inches)	% Impervious	Constant Rate (in/hr)	SCS Lag (minutes)
Locks Creek	1.46	0.25	0.25	1	60
Frenchman's Creek	0.593	0.25	0.25	1	40
Right Bank	0.399	0.25	0.25	1	48
Left Bank	0.778	0.25	0.25	1	63

**Percent (%) Impervious.** The percent impervious surface reflects that amount of land coverage (roads, roofs and other structures) resulting in impervious surfaces within the watershed area. The watershed is predominantly undeveloped with some agricultural fields and buildings. The percent imperviousness in the watershed is very low, and assumed to be approximately 0.25%.

**SCS Lag Time.** The lag time is calculated to be the time interval between the centroid of rainfall excess to the peak of the unit hydrograph.

Baseflow within Frenchman's Creek was accounted for by using constant monthly flow values scaled from known low flow values on Pescadero Creek, where a USGS stream gage is located (#11162500). Table 2 presents the constant monthly baseflow values assumed for Frenchman's Creek.

Table 2. Constant Monthly Baseflow Values

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Flow (cfs)	0.20	0.28	2.12	0.61	0.33	0.19	0.09	0.05	0.04	0.16	0.17	0.21

### 3.1.3 Channel Flow Modeling

Two stream reaches were modeled, including: Reach 1, which conveys runoff from the northern watershed areas of Locks Creek and Frenchman's Creek and Reach 2, which conveys runoff from the direct drainage areas to the project site.

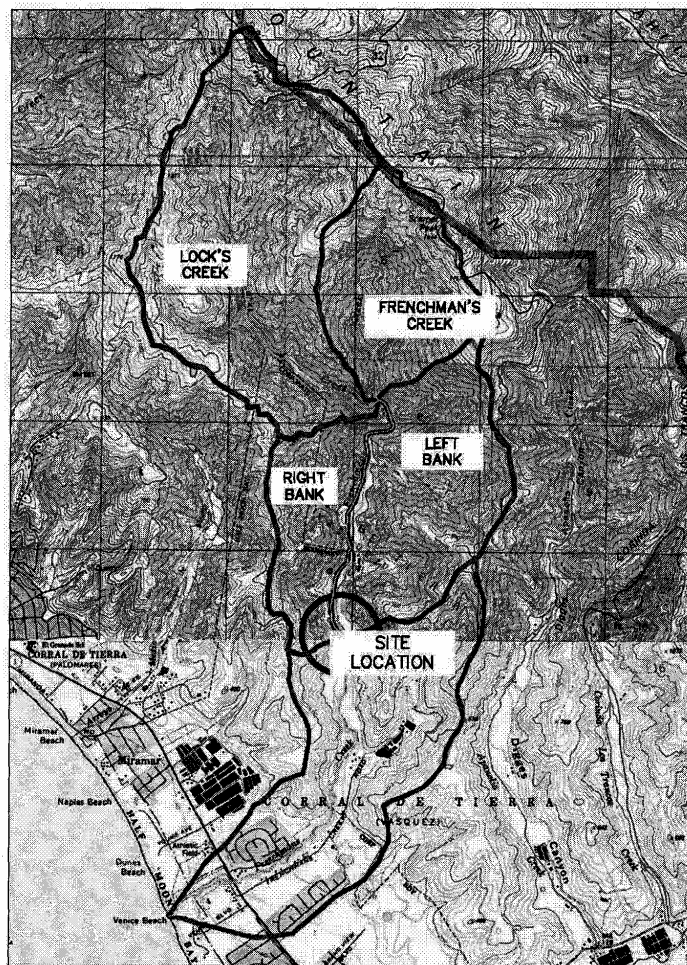


Figure 2. HEC-HMS Drainage Basins

To estimate stream flow in each reach the Musking Cunge routing algorithm was selected, which is appropriate for ungaged streams. In general, the method is based on continuity and momentum equations. The required input data includes channel shape, length, energy slope, bottom width, and Manning's roughness coefficient. A summary of the stream reach characteristics for modeled area is presented in Table 3.

Table 3. Stream Reach Data

Reach	Length (feet)	Energy Slope (feet/feet)	Bottom Width (feet)	Mannings #	Method
1	7153	0.05	7.5	0.04	Musking Cunge
2	1	0.03	7.5	0.04	Musking Cunge

#### 3.1.4 Rainfall Frequency and Duration Data

Data for the design storms was obtained from the NOAA Rainfall Frequency-Duration Atlas (Miller, Frederick, & Tracey, 1973). Table 4 summarizes the rainfall data used in the HEC-HMS model.

Table 4. Rainfall Frequency and Duration (inches)

Time	Storm					
	2-year	5 - year	10 - year	25 - year	50 - year	100 - year
5 minutes	0.2175	0.276	0.334	0.392	0.421	0.45
15 minutes	0.4275	0.542	0.656	0.77	0.827	0.88
1 hour	0.75	0.95	1.15	1.35	1.45	1.55
2 hour	1.05	1.35	1.6	1.8	1.97	2.15
3 hour	1.335	1.75	2.02	2.22	2.44	2.7
6 hour	2	2.6	3	3.2	3.6	4
12 hour	3.1	3.85	4.5	5.75	6.45	7.15
24 hour	4	5	6	8	9	10

#### 3.1.5 Runoff Estimates

The peak stream flow rates for each storm event estimated using the HEC-HMS model is shown in Table 5.

Table 5. Peak Flow in Stream Reaches (cubic feet per second (cfs))

Storm	Locks Creek	Frenchman's	Reach 1	Right Bank	Left Bank	Reach 2
2-year	89.8	54.3	134.5	30.7	45.7	208.2
5-year	181.6	109.7	271.7	61.9	92.3	421
10-year	273	164.6	408.1	92.9	138.8	630.6
25-year	371.5	223.3	554.9	126.2	188.8	857.3
50-year	422.6	253.5	630.9	143.4	214.8	974.8
100-year	473.5	283.5	706.5	160.5	240.7	1091.7

### 3.1.6 Paired Watershed Analysis

The goal of a paired watershed analysis is to correlate a watershed where stream data has been collected to a geologically and hydrologically similar watershed where stream data has not been collected. Stream data has not been collected from Frenchman's Creek, therefore FCE looked for watersheds to conduct a paired watershed analysis with Frenchman's Creek. Frenchman's Creek is located in a geologically unique unit of the Coast Range, consisting primarily of granite as quartz diorite (Geological Map of the San Francisco – San Jose Quadrangle). There are no other streams within the central coast region with a similar geology. However, there are coastal creeks to the North and South of Frenchman's Creek where stream flow data has been collected, San Pedro Creek to the north and Pescadero Creek to the south. These two creeks were each used in a paired watershed analysis.

**Pescadero Creek.** The United States Geological Survey (USGS) operates a stream gage station (#11162500) on Pescadero Creek outside of Pescadero in San Mateo County. The gaging station operated from 1951 to 2001 and recorded average daily and peak stream flow values during this period. This information was correlated to Frenchman's Creek by scaling the flow values per unit of watershed area. This data has been utilized to prepare flow duration and flood recurrence interval calculations for Frenchman's Creek.

**San Pedro Creek.** A rating curve for San Pedro Creek, developed by the Army Corps of Engineers was used to identify the 2-, 5-, 10-, 25-, 50-, and 100-year flow events on San Pedro Creek. This information was correlated to Frenchman's Creek by scaling the flow values per unit of watershed area. This information was then used in the recurrence interval calculations.

### 3.1.7 Regional Regression Equations

The USGS has developed a series of regression equations for six distinct hydrological regions within California. These equations are used to estimate peak discharge values for various flood recurrence intervals. Frenchman's Creek is located within the Central Coast Region, therefore the equations developed for this region were used to estimate the 2-, 5-, 10-, 25-, 50-, and 100-year flow events for Frenchman's Creek.

### 3.1.8 Flood Frequency Recurrence

A flood frequency recurrence curve was developed to estimate various flood stage flow values for each of the methods described above, as shown in Figure 3. A summary of the flood flows for each method are presented Table 6.

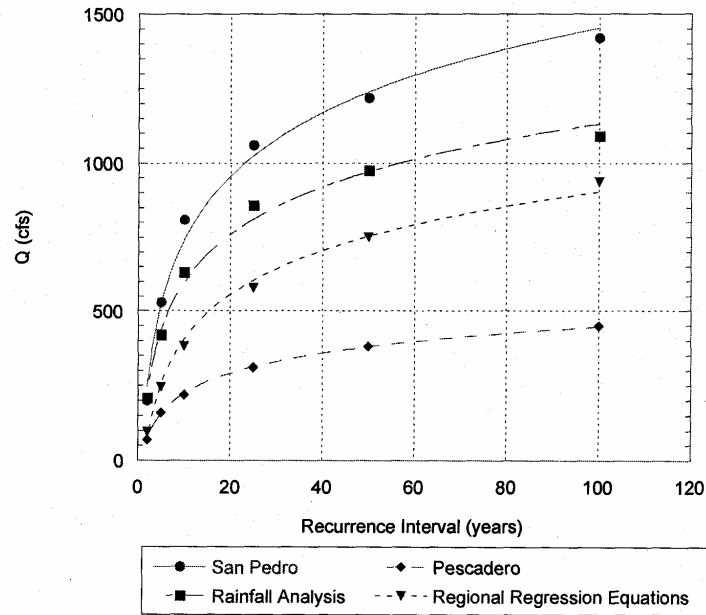


Figure 3. Flood Frequency Recurrence Curves for Four Analysis on Frenchman's Creek



Table 6. Summary of Flow Recurrence Magnitudes

Recurrence Interval (years)	HEC-HMS Rainfall Runoff Results (cfs)	Area Adjusted San Pedro Results (cfs)	Area Adjusted Results Pescadero (cfs)	Regional Regression Equations (cfs)
2	208	200	70	96
5	420	530	160	246
10	631	810	220	381
25	857	1060	310	578
50	975	1220	380	750
100	1092	1420	450	938

A regression equation was developed from the results of these analyses by generating a best fit curve, as shown in Figure 4. A summary of the flood recurrence flows derived from the combined regression equation is presented in Table 7.

#### Recurrence Interval Regression

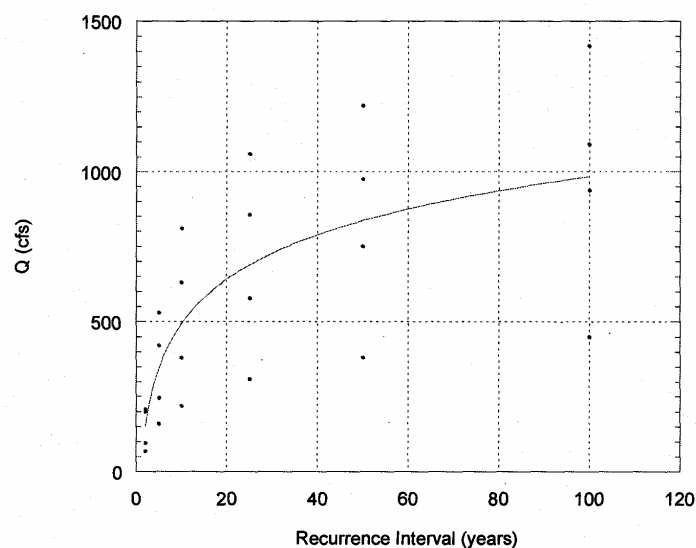


Figure 4. Recurrence Interval Regression for Frenchman's Creek

Table 7. Summary of Flow Recurrence Magnitudes Derived from Recurrence Interval Regression

Recurrence Interval (years)	Combined Results (cfs)
2	151
5	346
10	494
25	689
50	836
100	984

**Flow Duration Curve.** A flow duration curve was prepared to determine the percentage of time that average daily flows are equaled or exceeded on Frenchman's Creek. Stream flow values per unit watershed area from Pescadero Creek were used to develop a flow duration curve for Frenchman's Creek, as shown in Figure 5. Using a paired watershed analysis with Pescadero Creek was selected as the best method of developing a flow duration curve because Pescadero Creek has 50 years of daily stream values (a substantial data set are needed to generate a good flow duration curve).

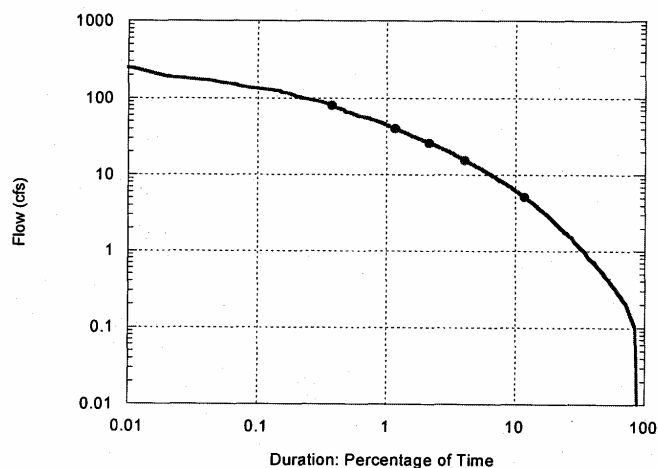


Figure 5. Frenchman's Creek Flow Duration Curves

The flow duration curve was used to determine the percent exceedance flows for both adult and juvenile fish. Annual exceedance flows were determined for average annual daily stream flows, as shown in Table 8.

Table 8. Summary of Percent Exceedance of Annual Flows for Various Fish Flow Conditions

Fish Flow Conditions	Annual Exceedance Flow (%)	Flow (cfs)
Juvenile Low Flow	95	1
Adult Low Flow	50	3
Juvenile High Flow	10	6.5
Adult High Flow	1	50

Information from this hydrological analysis was considered during the development of the preliminary restoration design.

### 3.2 HYDRAULIC ANALYSIS

The U.S. Army Corps of Engineers Hydrologic Engineering Center's "River Analysis System" computer program (HEC-RAS) was used to develop a one-dimensional hydraulic model of the stream channels. The model was used to calculate the water surface elevation in the channel for both existing and proposed conditions. The model was also used to calculate the stream velocity and the shear stress in the channel for the various storm events.

The computational procedure of the model is based on the solution of the one-dimensional energy equation. Energy losses by friction (Manning's equation) and channel contraction/expansion (coefficients multiplied by the change in velocity head) are calculated. The data needed to perform the computations included channel geometry and stream flow data. Geometric data was obtained from the topographic survey of the stream channels and floodway, and stream flow data was obtained from the results of the hydrologic analysis, as described above.

#### 3.2.1 Geometric Data

To obtain the geometric data for the section of Frenchman's Creek proposed for restoration, a topographic survey was performed at the project site, up and downstream of the perched culvert. Data from the topographic map was used to develop cross section geometry and reach lengths used in the hydraulic model. The existing topography was used to develop a model of existing conditions. A second set of cross sections (channel geometry) were prepared to simulate stream flow conditions after the proposed restoration work is completed.

### 3.2.2 Stream (Hydraulic) Model

The hydraulic model developed for the site includes approximately 124 feet of stream channel upstream of the culvert, and continues approximately 186 feet below the 42 foot long culvert. Energy losses in the model are estimated using Manning's roughness coefficients for natural channels and coefficients for contraction and expansion of flow due to changes in cross section geometry. A Manning's coefficient ('n' value) of 0.055 was used for the channel beds to model stream flow for the existing conditions. This value is within a range of values observed in main channels with sluggish reaches with weedy deep pools. A Manning's 'n' value of 0.055 was used for the overbank/floodplain area, which is within a range of values observed for areas with light brush and trees in winter and summer conditions (USACOE, 2002). Based on stream morphology, contraction and expansion coefficients of 0.1 and 0.3, respectively, were used in the model (USACOE, 2002).

Data for the existing culvert and roadway crossing Frenchman's Creek was added to the model. The 72-inch diameter culvert is approximately 42 feet long, and was modeled using an entrance loss coefficient of 0.9 and an exit loss coefficient of 1. A Manning's n coefficient of 0.021 was used in the model, a value typical of corrugated metal stormdrains flowing partly full (USACOE, 2002).

### 3.2.3 Model Results

The hydraulic model was run to simulate flows in the stream for two scenarios, existing and restored channel conditions. Model runs were conducted using peak flow data obtained using HEC-HMS, as described above for the 2-year, 5-year, 10-year, 25-year, 50-year, and 100-year storm events. The model was run to calculate water surface elevation (stage height) and channel velocity.

The results of the hydraulic modeling indicate that under all conditions modeled for both existing and restored channel configurations, the peak flows remain within the channels and water surface elevations decrease.

The results of the HEC-RAS Model are presented in Appendix B.

#### 4. DESIGN CRITERIA AND ENGINEERING CALCULATIONS

The following sections provide a summary of the design criteria used to design the proposed grade control and bank stabilization measures. The material and construction specifications for each measure are provided in the accompanying design plans and specifications.

##### 4.1 FISH PASSAGE CRITERIA

Design criteria were considered for the upstream migration of adult fish within the proposed channel. For upstream migration of adult steelhead;

- Maximum velocity and minimum water depth requirements have been considered. NMFS recommends a maximum velocity of 6 feet per second (fps) and a minimum water depth of 1 foot as guidelines for passage of adult steelhead.
- At boulder weirs the maximum hydraulic jump height for adult fish is one foot.
- Energy dissipation between weir steps was considered to determine appropriate pool volume. A maximum energy dissipation of 4 foot pounds of energy per second per cubic foot of volume is the energy dissipation criteria used for steelhead (Bates, 1992).
- Below each step, a jump pool is provided that is at least 1.5 times the jump height, or a minimum of two feet deep.
- Although, steelhead do not migrate under all flow conditions, current guidelines for passage design call for unimpeded passage over a range of flows based on local hydrologic criteria. Under low flow conditions, channel conditions should be suitable for passage of adult fish when flow reaches the greater of the 50% annual exceedence flow or 3 cfs. Passage conditions should remain suitable up through the 1% exceedence flow.

These criteria will be used as the basis of design for the proposed channel restoration.

##### 4.2 CHANNEL DESIGN

The accompanying engineering plans present the plan and profile of the existing site topography and culvert. The basic elements of the proposed restoration design include:

- Removing the existing culvert and road crossing. Including clearing vegetation and debris and rough grading to provide temporary stream access.

- Regrading the channel to an approximate 4% slope over the project reach. The restored channel would include a low flow channel and approximate bankfull width of 13 feet and a bankfull depth of 2 feet.
- Installing eight one foot high boulder step-pool weirs placed at 30-foot spacing to provide grade control and facilitate step-pool formation to enhance fish habitat in the project reach.
- Installing toe and bank stabilization measures, including vegetated riprap.
- Revegetating the site with native riparian plantings.
- Installing a new 65'3" long by 10-foot wide clear span bridge constructed with a railcar bed supported by concrete abutments.

During the development of the proposed channel design FCE conducted a field survey to identify important design parameters, such as bankfull width, bankfull height, and pool-riffle spacing. During a site visit on January 8, 2003 measurements of these parameters were collected and are summarized in Table 9.

Table 9. Summary of Field Assessment of Design Parameters

Site Description	Bankfull Width (ft)	Bankfull Height (ft)	Pool-Riffle Spacing (ft)	Channel Slope
Frenchman's Creek	13	1.9	20-30	1%

As part of the design process, FCE performed hydraulic calculations to evaluate energy dissipation of stream flow through the proposed channel and step-pools. Adequate energy dissipation within each pool reduces turbulence and aeration, and ideally provides a resting area for migrating steelhead. Adequate pool volume was calculated using the equation:

$$V_{\text{pool}} = \frac{\gamma \times Q \times h}{4 \text{ ft-lb/ft}^3/\text{sec}}$$

where  $\gamma$  is the unit weight of water in pounds per cubic feet,  $Q$  is the flow entering the pool in cfs and  $h$  is the head of the flow entering the pool in feet. The results of the analysis indicated that the proposed design would provide unimpeded fish passage 99 percent of the time for annual flow conditions. When flows exceed 50 cfs the boulder weir step-pools may become temporarily impassable until flows subside.

#### 4.3 BOULDER WEIRS

The boulders weirs were designed to reestablish the grade of the channel, once the existing culvert and road crossing are removed, and to reduce the migration of head cuts within the restoration reach. The size of the boulders was determined using two methods.

The first was based on the Washington State Department of Transportation Hydraulics Manual (WS DOT, 1997) and the second was based on SCS Procedure (Haan, Barfield, & Hayes, 1994). The calculations can be found in Appendix C. Based on the two sets of calculations it was determined that boulders with a  $D_{50}$  of 3.5 ft would be adequate for the boulders in the stream channel.

## 5. REVEGETATION

### 5.1 GENERAL

The overriding guideline of the revegetation plan is to replace the native plant species that existed in the project area previously. Larger white alders in graded areas near the uppermost bank slopes will not be removed as several inches to a foot of fill soil will not adversely affect them. This would tentatively include a 15" and double 10" trees on the west bank and a 15" tree on the east bank, all below the bridge crossing. Other smaller native trees in this zone will also be protected where possible. These trees will be flagged by the botanist or revegetation specialist and fenced with temporary construction fencing so that the contractor will avoid them.

Plant species selection has been made based on native species that exist in the immediate vicinity, and secondarily, native plants found in the larger Frenchmans Creek and Pilarcitos Creek watersheds. At each site where temporary equipment access trails are graded or bank slopes disturbed by construction, slopes will be recontoured to original contours. An erosion control blanket will be installed and native shrubs and groundcover will be planted for long term erosion protection. All non-native invasive plant species such as cape ivy (*Senecio mikanioides*), poison hemlock (*Conium maculatum*) and eucalyptus seedlings (*Eucalyptus globulus*) will be removed prior to native revegetation.

The revegetation approach has been divided between the Lower and Upper Frenchmans Creek Bankslope and is presented below.

#### 5.1.1 Lower Frenchmans Creek Bankslope

Two species of willow-- arroyo willow (*Salix lasiolepis*) and yellow willow (*Salix lucida* spp. *lasiandra*), and alder (*Alnus rhombifolia*)—are predominant in Frenchmans Creek. Therefore, these riparian species will be used for streambank revegetation on the new stream channel. Riparian plants will provide shaded riverine aquatic (SRA) cover, benefiting native fish and aquatic organisms in the Creek. Willow pole cuttings will be the largest component of species selected for revegetation in this area. Willow cuttings will be taken from the project site and other locations on Frenchmans Creek. Container-grown alders, the low shrub and herbaceous species will be interplanted within the tree species and are designed to provide erosion control and soil retention after the erosion control blanket (ECB) decomposes (2-3 years). High flood flows may remove lower elevation plants during the early establishment period. These plants should be re-planted during the next fall planting period. In addition, the rip-rap bank stabilization protecting

the bank slope under the bridge will be interplanted with willow where the rip-rap daylightings on each side of the bridge and therefore receives some sunlight.

#### 5.1.2 Upper Frenchmans Creek Bankslope

The upper bankslope will have moist, shaded conditions, but soil moisture and available groundwater levels will not be as high as found on the lower bankslopes. Therefore, plant selection includes those species that can tolerate drier summer moisture conditions typical of coastal central California. It is expected that some existing natives such as nettle (*Stachys bullata*) and California blackberry will colonize from adjacent areas. Non-native species such as cape ivy and poison hemlock will also recolonize and must be removed during the vegetation establishment period to insure revegetation success. As with the lower bank slope, shrubs, groundcover young trees are expected to provide erosion control when established in 2-3 years.

Planting notes and revegetation specifications are presented in the accompanied plans and specifications.

#### 5.2 IRRIGATION

Dry season irrigation is critical to revegetation success. All container-installed plants should be irrigated for 3 years after planting during the spring-summer-fall dry season. Irrigation should occur at least twice each week, but may need to be adjusted for climatic conditions and sun exposure.

Recommended irrigation is by drip emitters to each plant from a point of connection in the adjacent farm fields. Hand watering is an option.

#### 5.3 REVEGETATION MAINTENANCE

The maintenance program will extend for a period of 3 years after completion of plant installation. All maintenance tasks will be performed once each month during the first year after plant installation, and once quarterly during years 2-3. Proposed maintenance tasks are presented in the accompanied plans and specifications.

#### 5.4 PERFORMANCE STANDARDS

Monitoring of the revegetation plantings will be conducted on a yearly basis during the active growing season (i.e., between April and June), beginning in the spring after the initial cutting and container plant installation. Each revegetation area will be visually assessed for total plant cover, native and non-native plant cover, bare ground, species richness (total number of species), and species density. The cover by planted and natural species recolonization will also be recorded. If performance in any year is clearly lagging by 10% or greater than expected, the revegetation specialist will review the site, and



additional container plants or cuttings will be installed. Table 10 indicates expected success criteria.

Table 10. Performance Standards and Final Success Criteria Frenchmans Creek Revegetation

Attribute	Years			Final Success Criteria (Year 5)
	2	3	4	
LOWER BANKSLOPE RIPARIAN				
Total Native Plant Cover (% relative cover)	>40	>45	>50	>60
% cover native trees / native shrubs	25/75	25/75	30/70	35/65
Non-native Plant Cover	<25	<25	<20	<15
Bare Ground	<35	<35	<30	<25
Species Richness (native species)	>6	>6	>7	>8
Upper Bankslope Riparian				
Total Native Plant Cover	>40	>45	>50	>60
% Cover native trees / native herbaceous	20/80	20/80	25/75	30/60
% Non-native Plant Cover	<20	<20	<15	<10
Bare Ground	<35	<35	<30	<25
Native Species Richness	>6	>6	>7	>8

## 6. EROSION CONTROL

All exposed soil surfaces will be covered with a natural fiber and degradable erosion control blanket, such as the North American Green SC 150. The erosion control blanket will extend from the top to bottom of the slope.

Area will be graded and shaped prior to installation. All temporary access roads will also be recontoured. All rocks, clods, vegetation or other debris shall be removed so that the mat will have firm contact with soil.

Straw rolls/coir logs will be used for bank and slope stabilization and perimeter sediment control. The fiber rolls will be placed in two to three inch deep trenches and staked along the contours of newly constructed or disturbed slopes. For coir log installation along the stream bank, the top of the log shall be two inches above mean high water level.

Erosion control measures will be inspected periodically during the rainy season and each year prior to October 15 for erosion, undermining and damage. Any damage should be repaired immediately.

No erosion control seeding is planned as erosion control grasses will compete with planted container plants and native riparian groundcover in adjacent areas.

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San Mateo RCD  
Fish Passage Improvement PWP and NOID

file:///G:/-/%20San%20Mateo%20County/RCD%20Fish%20Passage%20PW...Nest%20Surveys%20Frenchmen's%20Creek%20Half%20Moon%20Bay..txt

From: Kellyx Nelson [kellyx@sanmateorcd.org]  
Sent: Wednesday, June 20, 2007 10:19 AM  
To: YinLan Zhang  
Subject: FW: Woodrat Nest Surveys Frenchmen's Creek, Half Moon Bay

EXHIBIT NO. 7
APPLICATION NO.
PWP 2-07-04 & SMC NOID 1-07
SITE ASSESSMENT FOR SF DUSKY-FOOTED WOODRAT

(page 1 of 3)

Phew! No nests in the project disturbance area, though there are some outside of the area that are good to know about so we can avoid impacts anyway.

Best,  
Kx

.....><(((°>

Kellyx Nelson  
Executive Director  
San Mateo County Resource Conservation District  
625 Miramontes Street Suite 103  
Half Moon Bay, CA 94019  
phone: 650.712.7765  
fax: 650.726.0494

-----Original Message-----

From: Karen Swaim [mailto:kswaim@swaimbio.com]  
Sent: Tuesday, June 19, 2007 9:42 PM  
To: Kellyx Nelson  
Subject: Woodrat Nest Surveys Frenchmen's Creek, Half Moon Bay.

Kellyx,

This email summarizes the results of field surveys for Dusky footed woodrat nests at the Frenchman's Creek Restoration Site in Half Moon Bay, San Mateo County, California. The survey was conducted on June 19th from 1615-1800. Weather conditions were clear and sunny. I conducted a survey for dusky footed woodrats within the limits of work and at least 50 feet adjacent to the work area in on the banks, and upstream and downstream from the project area. I was able to inspect the area thoroughly by viewing the site from elevated vantage points, such as the top of the culvert, the tops of the creek banks and by climbing into several large alder trees that have fallen over the creek. I also traversed the work area on the ground to look for nests amongst the vegetation.

No woodrat nests were found in the project area limits of disturbance.

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file:///G:/-/%20San%20Mateo%20County/RCD%20Fish%20Passage%20PW...Nest%20Surveys%20Frenchmen's%20Creek%20Half%20Moon%20Bay..txt

Two nests were found approximately 60 feet from the western edge of where the dirt road bends west of the creek (map and photo attached). Both nests are on an elevated terrace under the canopy of alder trees. Both are at least 30 feet from the edge of the area proposed for disposal of excess soil on the agricultural field.

Please call if you have any questions regarding the survey or need further information.

Regards,

Karen  
510.821.8569 (cell)

--

\*\*\*\*\*

Karen Swaim  
Herpetologist/President  
Swaim Biological Inc.  
4435 First Street, PMB # 312  
Livermore, CA 94551

925.455.8770 phone  
925.455.6106 fax

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\*\*\*\*\*

Exhibit 7  
PWP 2-07-04/SMC NOID 1-07  
Page 2 of 3

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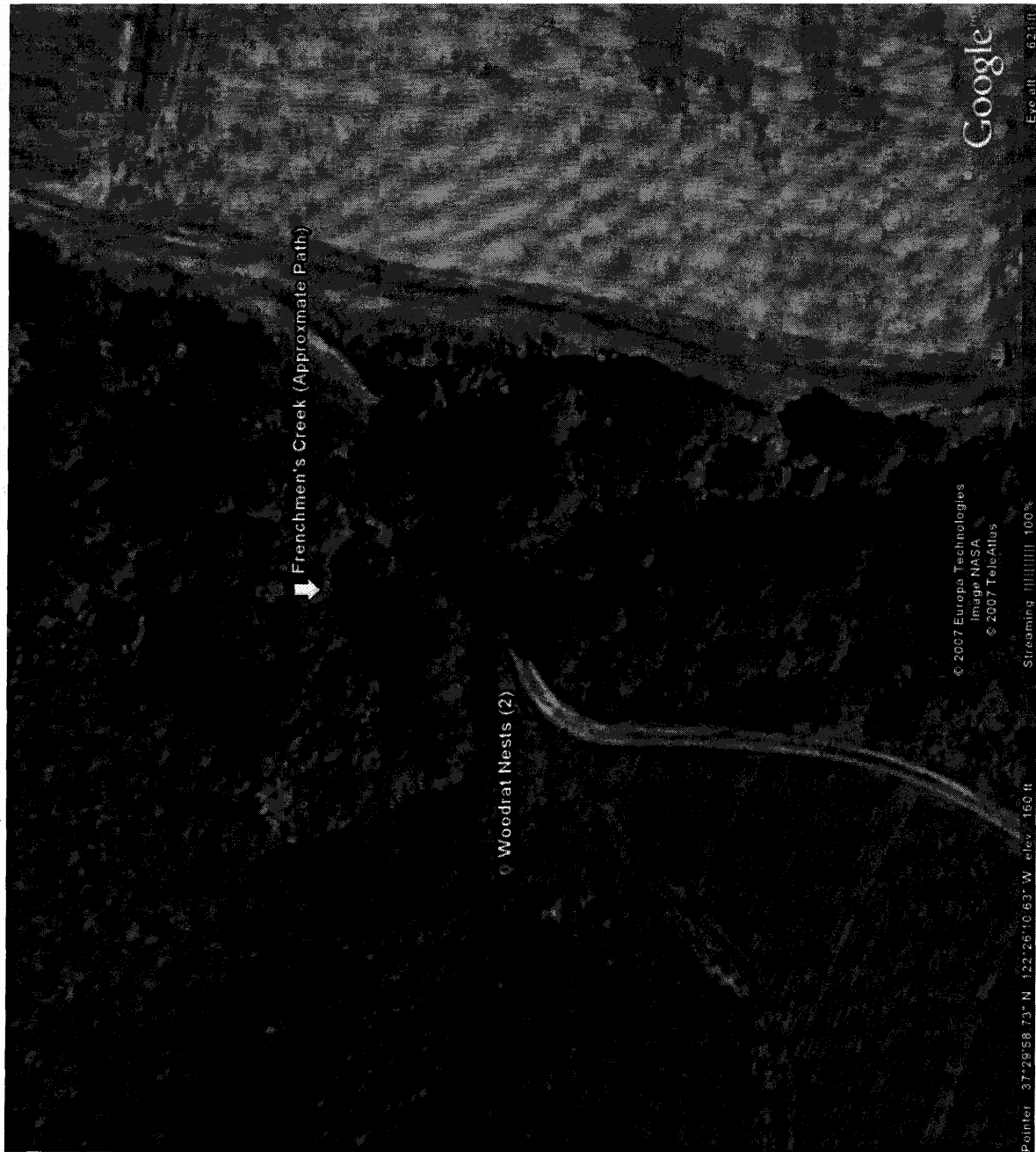


Exhibit 7  
PWP 2-07-04/SMC NOID 1-07  
Page 3 of 3

Exhibit 8. Rare Plant  
Survey Report

EXHIBIT NO. 8
APPLICATION NO.
PWP 2-07-04 & SMC NOID 1-07
RARE PLANT SURVEY REPORT (page 1 of 5)

**Sensitive Plant Survey Results for the  
Frenchman's Creek Fish Passage Improvement Project**

Prepared by  
Melissa Smothers

Cultural Resources Facility  
Center for Indian Community Development  
Humboldt State University (HSU)  
Arcata, CA 95521

26 June 2007

### Introduction

The Frenchman's Creek Fish Passage Improvement Project is designed to restore steelhead upstream migration and out migration by replacing a culvert and with a clear span bridge. The California Environmental Quality Act (CEQA) requires the California Department of Fish and Game (CDFG) to implement procedure to identify and mitigate potential impacts to sensitive plant species and sensitive habitats as defined by CEQA guidelines §15380(d) that may exist within any project that is conducted, funded, or permitted by CDFG. As part of CEQA compliance for a CDFG Section 1603 Stream Alteration Act Agreement, the restoration site within the project area was investigated for sensitive plant species and sensitive habitats at the request of CDFG's Gary Flosi. Under the direction of James Roscoe, the investigation was conducted by the Cultural Resources Facility for the Center of Indian Community Development at Humboldt State University. This report describes the results of a botanical investigation conducted in May 2007. The report is intended as an attachment to the Cultural Resources Investigation for the Frenchman's Creek Fish Passage Improvement Project. For a map of the project area and specific information on the proposed project, please refer to the associated report.

### Environmental Setting

The project area is located along 180 feet of Frenchman's Creek in San Mateo County on the Montara Mountain USGS 7.5-minute quadrangle. The vegetation is best described as Red alder series (Sawyer and Keeler-Wolf 1995). The overstory is dominated by *Alnus rubra* (Red alder). Understory species include *Rubus ursinus* (California blackberry), *Urtica* sp. (stinging nettle), and *Delairea odorata* (cape ivy).

## Methods

Prior to field visitation, a list of sensitive species and sensitive habitats with the potential to occur in the project was generated using the California Natural Diversity Database (California Department of Fish and Game 2007) and the California Native Plant Society Inventory On-line (California Native Plant Society 2007). Databases were queried using the USGS 7.5-minute quadrangle containing the project (Montara Mountain) and the eight adjacent quadrangles. Fifty-four sensitive plant species (Table 1) and four sensitive habitats (Table 2) had the potential of occurring within the Frenchman's Creek Fish Passage Improvement Project area.

A botanical survey conducted on May 29, 2007 was seasonally appropriate for sensitive species and habitats. All locations proposed for treatment and access roads were examined. Any plants with the potential to be sensitive species were identified to the taxonomic level necessary to determine rarity. Melissa Smothers conducted the survey. Ms. Smothers has a Bachelor of Science degree in Biology (Environmental Biology) and a minor in Botany from HSU. The botanist has experience conducting rare plant surveys in northern California and is familiar with the sensitive species and habitats.

## Results and Recommendations

The survey was completed in 1 field-person hour. Sixty-two plant taxa were identified within the project area (Table 3). No sensitive species or habitats were encountered during the field survey of the project area. Results of the botanical survey indicate that negative impacts to sensitive species or habitats will not occur as a result of the Frenchman's Creek Fish Passage Improvement Project, since no sensitive species or habitats were found within the project area. No further botanical surveys are recommended before ground-disturbing activities commence. Survey routes are depicted in the archaeological report.

## Literature Cited

- California Department of Fish and Game: California Natural Diversity Database (CNDBB) Quad Viewer [web application]. 2007. Sacramento, California. Available [http://maps.dfg.ca.gov/CNDDDB\\_Quads/](http://maps.dfg.ca.gov/CNDDDB_Quads/) [Accessed: 24 May 2007]
- California Native Plant Society: Information on California plants for conservation [web application]. 2007. Sacramento, California: CNPS Inventory On-line [a non-profit organization]. Available <http://www.cnps.org/> [Accessed: 24 May 2007]
- Hickman, J.C., ed. 1996. *The Jepson Manual: higher plants of California*. University of California Press, Berkeley, California.
- Sawyer, J.O. and T. Keeler-Wolf. 1995. *A Manual of California Vegetation*. California Native Plant Society. Sacramento, California.



**Table 1.** Fifty-four sensitive species potentially occurred with in the Frenchman's Creek Fish Passage Improvement Project area. The list was assembled from known populations located on the Montara Mountain USGS 7.5-minute quadrangle and the 8 adjacent quadrangles.

Scientific Name	Common Name	CNPS Status
<i>Acanthomintha duttonii</i>	San Mateo thorn-mint	1B.1
<i>Allium peninsulare</i> var. <i>franciscanum</i>	Franciscan onion	1B.2
<i>Amsinckia lunaris</i>	bent-flowered fiddleneck	1B.2
<i>Arctostaphylos andersonii</i>	Santa Cruz manzanita	1B.2
<i>Arctostaphylos hookeri</i> ssp. <i>franciscana</i>	Franciscan manzanita	1A
<i>Arctostaphylos hookeri</i> ssp. <i>ravenii</i>	Presidio manzanita	1B.1
<i>Arctostaphylos imbricata</i>	San Bruno Mountain manzanita	1B.1
<i>Arctostaphylos montaraensis</i>	Montara manzanita	1B.2
<i>Arctostaphylos regismontana</i>	Kings Mountain manzanita	1B.2
<i>Astragalus pycnostachyus</i> var. <i>pycnostachyus</i>	coastal marsh milk-vetch	1B.2
<i>Astragalus tener</i> var. <i>tener</i>	alkali milk-vetch	1B.2
<i>Centromadia parryi</i> ssp. <i>parryi</i>	pappose tarplant	1B.2
<i>Chorizanthe cuspidata</i> var. <i>cuspidata</i>	San Francisco Bay spineflower	1B.2
<i>Chorizanthe robusta</i> var. <i>robusta</i>	robust spineflower	1B.1
<i>Cirsium andrewsii</i>	Franciscan thistle	1B.2
<i>Cirsium fontinale</i> var. <i>fontinale</i>	fountain thistle	1B.1
<i>Cirsium occidentale</i> var. <i>compactum</i>	compact cobwebby thistle	1B.2
<i>Collinsia multicolor</i>	San Francisco collinsia	1B.2
<i>Cordylanthus maritimus</i> ssp. <i>palustris</i>	Point Reyes bird's-beak	1B.2
<i>Dirca occidentalis</i>	western leatherwood	1B.2
<i>Equisetum palustre</i>	marsh horsetail	3
<i>Eriogonum luteolum</i> var. <i>caninum</i>	Tiburon buckwheat	3.2
<i>Eriophyllum latilobum</i>	San Mateo woolly sunflower	1B.1
<i>Fritillaria biflora</i> var. <i>ineziana</i>	Hillsborough chocolate lily	1B.1
<i>Fritillaria liliacea</i>	fragrant fritillary	1B.2
<i>Gilia capitata</i> ssp. <i>chamissonis</i>	dune gilia	1B.1
<i>Grindelia hirsutula</i> var. <i>maritima</i>	San Francisco gumplant	1B.2
<i>Helianthella castanea</i>	Diablo helianthella	1B.2
<i>Hesperis matronalis</i> var. <i>brevifolia</i>	short-leaved evax	2.2
<i>Hesperis matronalis</i> var. <i>congestum</i>	Marin western flax	1B.1
<i>Horkelia cuneata</i> ssp. <i>sericea</i>	Kellogg's horkelia	1B.1
<i>Horkelia marinensis</i>	Point Reyes horkelia	1B.2
<i>Layia canna</i>	beach layia	1B.1
<i>Leptosiphon croceus</i>	coast yellow leptosiphon	1B.1
<i>Leptosiphon rosaceus</i>	rose leptosiphon	1B.1
<i>Lessingia arachnoidea</i>	Crystal Springs lessingia	1B.2
<i>Lessingia germanorum</i>	San Francisco lessingia	1B.1
<i>Lessingia hololeuca</i>	woolly-headed lessingia	3
<i>Lilium maritimum</i>	coast lily	1B.1
<i>Lupinus eximius</i>	San Mateo tree lupine	3.2
<i>Malacothamnus aboriginum</i>	Indian Valley bush mallow	1B.2
<i>Malacothamnus arcuatus</i>	arcuate bush mallow	1B.2
<i>Malacothamnus davidsonii</i>	Davidson's bush mallow	1B.2
<i>Malacothamnus hallii</i>	Hall's bush mallow	1B.2
<i>Pedicularis dudleyi</i>	Dudley's lousewort	1B.2
<i>Pentachaeta bellidiflora</i>	white-rayed pentachaeta	1B.1
<i>Plagiobothrys chorisianus</i> var. <i>chorisianus</i>	Choris's popcorn-flower	1B.2

<i>Potentilla hickmanii</i>	Hickman's cinquefoil	1B.1
<i>Sanicula maritima</i>	adobe sanicle	1B.1
<i>Silene verecunda</i> ssp. <i>verecunda</i>	San Francisco campion	1B.2
<i>Suaeda californica</i>	California seablite	1B.1
<i>Trifolium depauperatum</i> var. <i>hydrophilum</i>	saline clover	1B.2
<i>Triphysaria floribunda</i>	San Francisco owl's-clover	1B.2
<i>Triquetrella californica</i>	coastal triquetrella	1B.2

**Table 2.** Four sensitive habitats potentially occurred within the Frenchman's Creek Fish Passage Improvement Project area. Information was retrieved from known habitats located on the Montara Mountain USGS 7.5-minute quadrangle and the 8 adjacent quadrangles.

<b>Habitat</b>
Northern Coastal Salt Marsh
Northern Maritime Chaparral
Serpentine Bunchgrass
Valley Needlegrass Grassland

**Table 3.** Sixty-two plant taxa observed within the Frenchman's Creek Fish Passage Improvement Project area. Taxonomy follows the Jepson Manual (Hickman 1993).

Scientific Name	Common Name
<b>Tree species:</b>	
<i>Alnus rubra</i>	red alder
<b>Shrub species:</b>	
<i>Ceanothus</i> sp.	buckthorn
<i>Rubus parviflorus</i>	thimbleberry
<i>Rubus spectabilis</i>	salmonberry
<i>Rubus ursinus</i>	California blackberry
<i>Salix</i> sp.	willow
<i>Sambucus racemosa</i>	red elderberry
<b>Herbaceous species:</b>	
<i>Agapanthus africanus</i>	lily of the Nile
<i>Anagallis arvensis</i>	scarlet pimpernel
<i>Athyrium filix-femina</i>	lady fern
<i>Avena sativa</i>	cultivated oat
<i>Brassica nigra</i>	Black mustard
<i>Bromus diandrus</i>	ripgut grass
<i>Bromus</i> sp.	brome
<i>Cerastium glomeratum</i>	mouse-ear chickweed
<i>Chamomilla suaveolens</i>	pineapple weed
<i>Cirsium vulgare</i>	Bull thistle
<i>Conium maculatum</i>	poison hemlock
<i>Convolvulus arvensis</i>	morning-glory
<i>Cortaderia jubata</i>	pampas grass
<i>Daucus carota</i>	Queen Anne's lace
<i>Delairea odorata</i>	Cape ivy

San Mateo RCD  
Fish Passage Improvement PWP and NOID

<i>Epilobium ciliatum</i> ssp. <i>ciliatum</i>	fireweed
<i>Equisetum telmateia</i> ssp. <i>braunii</i>	giant horsetail
<i>Erodium</i> sp.	storksbill
<i>Euphorbia</i> sp.	spurge
<i>Foeniculum vulgare</i>	fennel
<i>Galium</i> sp.	bedstraw
<i>Geranium</i> sp.	cranesbill
<i>Gnaphalium</i> sp.	cudweed
<i>Heracleum lanatum</i>	cow parsnip
<i>Hordeum jubatum</i>	foxtail barley
<i>Juncus</i> sp.	rush
<i>Lathyrus</i> sp.	wild pea
<i>Lolium perenne</i>	perennial ryegrass
<i>Lupinus arboreus</i>	yellow bush lupine
<i>Malva</i> sp.	mallow
<i>Melilotus indica</i>	sourclover
<i>Mimulus aurantiacus</i>	monkey flower
<i>Mimulus guttatus</i>	monkey flower
<i>Oenothera</i> sp.	evening primrose
<i>Oxalis</i> sp.	oxalis
<i>Plantago</i> sp.	plantain
<i>Poa annua</i>	annual bluegrass
<i>Polypogon</i> sp.	beard grass
<i>Polystichum munitum</i>	sword fern
<i>Pteridium aquilinum</i>	bracken fern
<i>Raphanus</i> sp.	wild radish
<i>Rumex acetosella</i>	sheep sorrel
<i>Rumex crispus</i>	curly dock
<i>Scrophularia californica</i>	California figwort
<i>Senecio</i> sp.	groundsel
<i>Solanum</i> sp.	nightshade
<i>Sonchus</i> sp.	sow thistle
<i>Stachys</i> sp.	hedge nettle
<i>Stellaria</i> sp.	chickweed
<i>Taraxacum officinale</i>	dandelion
<i>Trifolium repens</i>	white clover
<i>Urtica</i> sp.	stinging nettle
<i>Veronica americana</i>	American brooklime
<i>Vicia</i> sp.	vetch
<i>Zantedeschia</i> sp.	Calla lily

FROM : SMC\_RESOURCE CONS DISTRICT

PHONE NO. : 650 726 0494

Jun. 20 2007 10:14AM P1

STATE OF CALIFORNIA THE RESOURCES AGENCY  
**DEPARTMENT OF FISH AND GAME**  
CENTRAL COAST REGION  
(707) 944-5520  
Mailing address:  
POST OFFICE BOX 47  
YOUNTVILLE CALIFORNIA 94599  
Street address:  
7329 SILVERADO TRAIL  
NAPA CALIFORNIA 94558

**RECEIVED**

JUN 20 2007

CALIFORNIA  
COASTAL COMMISSION

June 1, 2007

EXHIBIT NO. 9

APPLICATION NO.

PWP 2-07-4 &  
SMC NOID 1-07 (Page 1 of 15)

CDFG 1602 STREAMBED  
ALTERATION AGREEMENT

No. 1600-2007-0096-3

Notification Number: 1600-2007-0096-3

San Mateo County Resource Conservation District  
625 Miramontes Street, Suite 103  
Half Moon Bay, CA 94019

### 1602 LAKE AND STREAMBED ALTERATION AGREEMENT

This agreement is issued by the Department of Fish and Game pursuant to Division 2, Chapter 6 of the California Fish and Game Code:

**WHEREAS**, the applicant San Mateo County Resource Conservation District, hereafter called the Operator, submitted a signed NOTIFICATION proposing to substantially divert or obstruct the natural flow of, or substantially change the bed, channel, or bank of, or use material from the streambed or lake of the following water: Pescadero Creek, located in T 5S, R 5W, Section 19, in the County of San Mateo, State of California; and *Pescadero*

**WHEREAS**, the Department has determined that such operations may substantially adversely affect existing fish and wildlife resources including water quality, hydrology, aquatic or terrestrial plant or animal species; and

**WHEREAS**, the project has undergone the appropriate review under the California Environmental Quality Act; and

**WHEREAS**, the Operator shall undertake the project as proposed in the signed PROJECT DESCRIPTION and PROJECT CONDITIONS (attached). If the Operator changes the project from that described in the PROJECT DESCRIPTION and does not include the PROJECT CONDITIONS, this agreement is no longer valid; and


**WHEREAS**, the agreement shall expire on December 31, 2011; with the work to occur between June 15 and October 31; and

**WHEREAS**, nothing in this agreement authorizes the Operator to trespass on any land or property, nor does it relieve the Operator of the responsibility for compliance with applicable Federal, State, or local laws or ordinances. Placement, or removal, of any material below the level of ordinary high water may come under the jurisdiction of the U. S. Army Corps of Engineers pursuant to Section 404 of the Clean Water Act;

**THEREFORE**, the Operator may proceed with the project as described in the PROJECT DESCRIPTION and PROJECT CONDITIONS. A copy of this agreement, with attached PROJECT DESCRIPTION and PROJECT CONDITIONS, shall be provided to contractors and subcontractors and shall be in their possession at the work site.

Failure to comply with all conditions of this agreement may result in legal action.

This agreement is approved by:

  
Chuck Armor  
Acting Regional Manager  
Central Coast Region

cc: Bob Coey  
Elliott Does  
Kristine Atkinson  
Lt. Don Kelly

FROM : SMC\_RESOURCE CONS DISTRICT

PHONE NO. : 650 726 0494

Jun. 20 2007 10:14AM P2

STATE OF CALIFORNIA THE RESOURCES AGENCY  
**DEPARTMENT OF FISH AND GAME**  
CENTRAL COAST REGION  
(707) 944-5520  
Mailing address:  
POST OFFICE BOX 47  
YOUNTVILLE, CALIFORNIA 94599  
Street address:  
7329 SILVERADO TRAIL  
NAPA, CALIFORNIA 94558  
0096

ARNOLD SCHWARZENEGGER, GOVERNOR



Notification Number: 1600-2007-0096-3  
Frenchmans Creek, San Mateo

San Mateo County Resource Conservation District  
625 Miramontes Street, Suite 103  
Half Moon Bay, CA 94019

### PROJECT DESCRIPTION and PROJECT CONDITIONS

#### **Project Description**

Improve fish passage for steelhead trout in Frenchman's Creek tributary to the Pacific Ocean near the city of Half Moon Bay, San Mateo County, California. The objective of the project is to improve access to approximately 2.1 miles of spawning habitat for adult steelhead and rearing habitat for juvenile steelhead by replacing an existing perched culvert at an agricultural crossing with a clear-span bridge and boulder cross-vane weirs.

Conduct work on Frenchman's Creek approximately 2 miles upstream from its confluence with the Pacific Ocean. The project is located in Township 5 South, Range 5 West, Section 19 of the Montara Mountain 7.5 Minute U.S.G.S. Quadrangle, 37° 30' 8.80" north latitude, and 122° 26' 10.62" west longitude as depicted in Exhibit C, Project Location Map, which is attached and made part of this agreement by this reference.

1. Perform the following work:
  - Design engineered plans for the bridge and weir installations to be submitted to the CDFG Grant Manager and Fish Passage Engineer prior to project commencement. The plans shall include details of construction, scaled drawings of the bridge and weirs as well as specifics on water diversion, fish relocation if necessary, slope stabilization, and revegetation.
  - Implement plans for listed species removal and water diversion.
  - Remove the existing perched culvert.
  - Install a clear span bridge.
  - Construct approximately 8 cross-vane boulder weirs to stabilize the channel grade.
  - Grade channel banks to the design slope.
  - Implement bank stabilization, erosion control, and revegetation measures

Page 1 of 15  
Date prepared:

Operator's initials AW  
Notification Number 1600-2007-0096-3

Exhibit 9  
PWP 2-07-04/SMC NOID 1-07  
Page 2 of 15

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#### **CONDITIONS:**

The Grantee shall not proceed with on the ground implementation until all necessary permits and consultations are secured.

The Grantee shall notify the Grant Manager a minimum of five working days before the project site is de-watered and the stream flow diverted. The notification shall provide a reasonable time for Department personnel to supervise the implementation of the water diversion plan and oversee the safe removal and relocation of salmonids and other fish life from the project area. If the project requires dewatering of the site, and the relocation of salmonids, the Grantee shall implement the following measures to minimize harm and mortality to listed salmonids:

- Fish relocation and dewatering activities shall only occur between June 15 and October 31 of each year.
- The Grantee shall minimize the amount of wetted stream channel dewatered at each individual project site to the fullest extent possible.
- All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service, *Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act*, June 2000.
- The Grantee shall provide fish relocation data to the Grant Manager on a form provided by the Department of Fish and Game.
- Additional measures to minimize injury and mortality of salmonids during fish relocation and dewatering activities shall be implemented as described in Part IX, pages 52 and 53 of the *California Salmonid Stream Habitat Restoration Manual*.

The project shall follow the National Marine Fisheries Service (NMFS 2001) Guidelines for Salmonid Passage at Stream Crossings and DFG criteria for fish passage as described in the Third Edition, Volume II, Part IX, February 2003, of the *California Salmonid Stream Habitat Restoration Manual*. Culvert replacement or modification designs shall be visually reviewed and authorized by NOAA Fisheries (or CDFG) engineers prior to commencement of work.

All habitat improvements shall be in accordance with techniques described in the Third Edition, January 1998, of the *California Salmonid Stream Habitat Restoration Manual*.

Work in flowing streams is restricted to June 15 through October 31. Actual project start and end dates, within this timeframe, are at the discretion of the Department of Fish and Game.

The Grantee shall maintain the new crossing, inspect the crossing in a timely manner and remove debris as necessary during the storm season.

#### **SPECIAL STATUS SPECIES**

The project site on Frenchman's Creek has been identified as an area that is within the Evolutionally Significant Unit (ESU) of State and/or Federally listed steelhead trout, and

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PHONE NO. : 650 726 0494

Jun. 20 2007 10:15AM P4

California red-legged frog, and the San Francisco Garter Snake. A survey by a Humboldt State University contractor will be conducted to identify archeological sites or listed plants – recommendations from that report will be adhered to, to avoid impacts to those resources.

The Operator will implement the following measures, as agreed by DFG, USFWS, NOAA Fisheries, USACE and California Regional Water Quality Control Boards in the document "Programmatic Endangered Species Consultation on the Regional General Permit for California Department of Fish and Game, Anadromous Fisheries Restoration Grants Program, Corps Permit No. 27922N and 22322N", dated August 18, 2004 to minimize adverse effects to listed species and their habitat.

In order to avoid any potential for negative impacts to these listed species the following measures shall be implemented:

**Steelhead (*Oncorhynchus mykiss*)**

Project work within the wetted stream shall be limited to the period between June 15 and November 1, or the first significant fall rainfall. This is to take advantage of low stream flows and to avoid the spawning and egg/alevin incubation period of steelhead. Whenever possible, the work period at individual sites shall be further limited to entirely avoid periods when salmonids are present (for example, in a seasonal creek, work will be confined to the period when the stream is dry).

No heavy equipment shall operate in the live stream, except as may be necessary to construct coffer dams to divert stream flow and isolate the work site.

Work must be performed in isolation from the flowing stream. If there is any flow when the work is done, the operator shall construct coffer dams upstream and downstream of the excavation site and divert all flow from upstream of the upstream dam to downstream of the downstream dam. The coffer dams may be constructed with clean river gravel or sand bags, and may be sealed with sheet plastic. Upon project completion, sand bags and any sheet plastic shall be removed from the stream in such a manner that would allow for the least disturbance to the substrate. Clean river gravel may be left in the stream, but the coffer dams must be breached to return the stream flow to its natural channel.

For minor actions, where the disturbance to construct coffer dams to isolate the work site would be greater than to complete the action (for example, placement of a single boulder cluster), measures will be put in place immediately downstream of the work site to capture suspended sediment. This may include installation of silt catchment fences across the stream, or placement of a filter berm of clean river gravel. Silt fences and other non-native materials will be removed from the stream following completion of the activity. Gravel berms may be left in place after breaching, provided they do not impede the stream flow or fish passage.

The channel shall not be excavated for the purpose of isolating the workspace from flowing water.

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Jun. 20 2007 10:16AM PS

The Operator shall obtain a biologist with all necessary State and Federal permits, to rescue any fish within work sites prior to dewatering. Rescued fish shall be moved to the nearest appropriate site on the stream outside of the work area. A record shall be maintained of all fish rescued and moved, and the record shall be provided to DFG at the completion of the work season.

A Service-approved biologist shall permanently remove from within the project work site, any individuals of exotic species, such as bullfrogs, centrarchid fishes, and non-native crayfish, to the maximum extent possible. The Operator shall have the responsibility that such removals are done in compliance with the California Department of Fish and Game Code.

If it is necessary to divert flow around the work site, either by pump or by gravity flow, the suction end of the intake pipe shall be fitted with fish screens meeting DFG and NMFS criteria to prevent entrainment or impingement of small fish. Any turbid water pumped from the work site itself to maintain it in a dewatered state shall be disposed of in an upland location where it will not drain directly into any stream channel.

Any disturbed banks shall be fully restored upon completion of construction. Revegetation shall be done using locally obtained native species. Planting techniques can include seed casting, hydroseeding, or live planting methods using the techniques in Part XI of the *California Salmonid Stream Habitat Restoration Manual*.

Suitable large woody debris removed from fish passage barriers that is not used for habitat enhancement, shall be left within the riparian zone so as to provide a source for future recruitment of wood into the stream, reduce surface erosion, contribute to amounts of organic debris in the soil, encourage fungi, provide immediate cover for small terrestrial species, and to speed recovery of native vegetation.

The following measures shall be taken to minimize injury and mortality to listed salmonids resulting from fish relocation and dewatering activities:

- a) Fish relocation and dewatering activities shall only occur between June 15 and November 1 of each year,
- b) The Operator shall minimize the amount of wetted stream channel that is dewatered at each individual project site to the fullest extent possible, and
- c) All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service Guidelines for Electrofishing Waters Containing Salmonids Listed under the Endangered Species Act, June 2000.

Operator will implement the following measures to minimize harm to listed salmonids resulting from culvert replacement activities and other instream construction work:

- a) All stream crossing replacement or modification designs, involving fish passage, must be visually reviewed and authorized by NMFS Fisheries (or DFG) engineers prior to commencement of work.
- b) If the stream in the project location was not passable to, or was not utilized by all life stages of, all covered salmonids prior to the existence of the

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road crossing, the project shall pass the life stages and covered salmonid species that historically did pass there. Retrofit culverts shall meet the fish passage criteria for the passage needs of the listed species and life stages historically passing through the site prior to the existence of the road crossing.

c) Effective erosion control measures shall be in-place at all times during construction. Construction within the 5-year flood plain will not begin until all temporary erosion controls (eg., straw bales or silt fences that are effectively keyed-in) are in-place down slope of project activities within the riparian area. Erosion control measures shall be maintained throughout the construction period. If continued erosion is likely to occur after construction is completed, then appropriate erosion prevention measures shall be implemented and maintained until erosion has subsided.

d) Sediment shall be removed from sediment controls once it has reached one-third of the exposed height of the control. Whenever straw bales are used, they shall be staked and dug into the ground 6 inches. Catch basins shall be maintained so that no more than 8 inches of sediment depth accumulates within traps or sumps.

e) Sediment-laden water created by construction activity shall be filtered before it leaves the right-of-way or enters the stream network or an aquatic resource area. Silt fences or other detention methods shall be installed as close as possible to culvert outlets to reduce the amount of sediment entering aquatic systems.

f) If the DFG determines that turbidity/siltation levels resulting from an activity or activities constitute a threat to aquatic life, all activities associated with the turbidity/siltation shall cease until effective DFG approved sediment control devices are installed and/or abatement procedures are implemented.

g) Upon project completion, all exposed soil present in and around the project site shall be stabilized within 7 days. Soils exposed by project operations shall be mulched to prevent sediment runoff and transport.

#### B-23

Mulches shall be applied so that not less than 90% of the disturbed areas are covered. All mulches, except hydro-mulch, shall be applied in a layer not less than two (2) inches deep. Where feasible, all mulches shall be kneaded or tracked-in with track marks parallel to the contour, and tackified as necessary to prevent excessive movement. All exposed soils and fills, including the downstream face of the road prism adjacent to the outlet of culverts, shall be reseeded with a mix of native grasses common to the area, free from seeds of noxious or invasive weed species, and applied at a rate which will ensure establishment.

Installation of the contracted bridge and weirs will be of adequate size that it will allow anadromous fish passage at all life stages and is designed to comply with current National Marine Fisheries Service (NMFS) Southwest Region fish passage guidelines.

If for some reason these mitigation measures cannot be implemented, or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential

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impacts to anadromous salmonids or their habitat, then activity at that work site will be discontinued.

**San Francisco Garter Snake (*Thamnophis sirtalis tetrataenia*):**

The project site is within the known range of the San Francisco garter snake (SFGS), a species listed as "Endangered" by both State and Federal governments and additionally considered as 'Fully Protected' pursuant to Section 5050 of the Fish and Game Code. Fully protected animals may not be taken for any purpose, except scientific studies and actions which can be considered wholly recovery for that species. In order to ensure no take occurs, the following conditions must be followed.

All work must be observed by a qualified biological monitor. The monitor must either be approved by Department of Fish and Game (DFG) and the United States Fish and Wildlife Service (USFWS). If work will take place at more than one location, each area must have at least one monitor. The standard that is to be met is that the number of monitors present in all parts of each work area must be sufficient to ensure that all of each can be observed.

Prior to the commencement of work each day, the monitor or monitors must survey the work area to ensure no SFGS are in the vicinity.

All vegetation must be removed by hand. Chain saws are allowed, but no machinery that disturbs the ground surface or travels along the ground surface may be used until, enough vegetation has been removed so that the ground is clearly visible.

Surface streets and paved areas shall be used to the greatest extent practicable for staging, storage and parking. If not practicable, a staging area should be selected and cleared under the supervision of the monitor or monitors. All off street parking, storage or staging shall be confined to this area.

Any vehicle or material that has been stationary for more than 15 minutes anywhere in the work area must be checked, by the monitor for the presence of SFGS prior to it moving.

All workers on the job, including subs and new workers, must receive a short training from one of the monitors. The training should identify the special status species with the potential to be present, tell how to recognize them and what to do if they are sighted. All snake sightings should be considered SFGS until confirmed one way or the other by the monitor. All workers should clearly understand what actions are to be taken if a snake is found in the work area.

If a snake is sighted in the work area, any actions that could result in harm to the snake must cease until the monitor identifies the snake. If the snake is not a SFGS, all work can recommence once the snake is removed from the area. If the snake is a SFGS, all work on the project must cease until DFG and USFWS are contacted.

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responsibility that such removals are done in compliance with the California Department of Fish and Game Code.

If for some reason these mitigation measures cannot be implemented or the project actions proposed at a specific work site cannot be modified to prevent or avoid potential impacts to CRLF or their habitat, then activity at that work site will be discontinued.

#### **Bird Species**

For restoration work that could affect raptor and migratory bird nesting, work shall start after July 31.

For restoration work that could affect swallow nesting habitat (such as removal of culverts showing evidence of past swallow nesting), construction will occur after August 31 to avoid the swallow nesting period. Alternatively, the suitable bridge nesting habitat will be netted before initiation of the breeding season to prevent nesting. Netting shall be installed before any nesting activity begins, generally prior to March 1. Swallows shall be excluded from areas where construction activities cause nest damage or abandonment.

#### **Rare Plants**

Prior to the commencement of work, the Operator will employ one or more of the following protective measures:

- a) Fencing to prevent accidental disturbance of rare plants during construction,
- b) On-site monitoring by a qualified biologist during construction to assure that rare plants are not disturbed, and
- c) Redesign of proposed work to avoid disturbance of rare plants.

If it becomes impossible to implement the project at the work site without potentially significant impacts to rare plants, then activity at that work site will be discontinued.

#### **CULTURAL RESOURCES**

Prior to the onset of work, the Operator shall implement one or more of the following protective measures:

- a) Fencing to prevent accidental disturbance of cultural resources during construction,
- b) On-site monitoring by a cultural resource professional during construction to assure that cultural resources are not disturbed, and
- c) Redesign of proposed work to avoid disturbance of cultural resources.

If it becomes impossible to implement the project at a work site without disturbing cultural resources, then activity at that work site will be discontinued.

#### **GEOLOGY AND SOILS**

Existing roads will be used to access work sites. In order to avoid temporary increases in surface erosion, the following mitigation measures will be implemented:

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Bare soil will be seeded with local native species mix, mulched, and planted as necessary, using best management practices described in the *California Salmonid Stream Habitat Restoration Manual*.

Soil will only be compacted to the extent necessary to reduce any surface erosion that may occur in the first heavy rainfall.

#### HAZARDS AND HAZARDOUS MATERIALS

The Operator shall have dependable radio or phone communication on-site to be able to report any accidents or fire that might occur.

Heavy equipment that will be used in these activities will be in good condition and will be inspected for leakage of coolant and petroleum products and repaired, if necessary, before work is started.

All equipment operators will be trained in the procedures to be taken should an accident occur. Prior to the commencement of work, the Operator shall provide DFG with a plan allowing for prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.

All activities performed in or near a stream will have absorbent materials designed for spill containment and cleanup at the activity site for use in case of an accidental spill.

All fueling and maintenance of vehicles, other equipment, and staging/storage areas shall be located at least 20 meters from any riparian habitat or water body. The Operator shall ensure contamination of habitat does not occur during such operations.

Any equipment or vehicles driven and/or operated within or adjacent to the stream shall be checked and maintained daily, to prevent leaks or materials that if introduced to water could be deleterious to aquatic life.

Staging and storage areas for equipment, materials, fuels, lubricants, and solvents shall be located outside of the stream's high water channel and associated riparian area. Stationary equipment such as motors, pumps, generators, compressors, and welders, located within the dry portion of the stream channel or adjacent to the stream, will be positioned over drip-pans.

All internal combustion engines shall be fitted with spark arrestors.

The Operator shall have an appropriate fire extinguisher(s) and fire fighting tools (shovel and axe at a minimum) present at all times when there is a risk of fire.

Vehicles shall not be parked in tall grass or any other location where heat from the exhaust system could ignite a fire.

The Operator shall follow any additional rules the landowner has for fire prevention.

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## HYDROLOGY AND WATER QUALITY

Work shall be conducted during the period of lowest flow.

If it is necessary to divert water around the work site, unimpeded bypass flows shall be maintained at all times to maintain downstream water quality.

When a dam (any artificial obstruction) is being constructed, maintained, or placed in operation, sufficient water shall at all times be allowed to pass downstream to maintain fishlife below the dam pursuant to Fish and Game Code Section 5837.

Debris, soil, silt, bark, rubbish, creosote-treated wood, raw cement/concrete or washings thereof, asphalt, paint or other coating material, oil or other petroleum products, or any other substances which could be hazardous to aquatic life, resulting from project related activities, shall be prevented from contaminating the soil and/or entering the waters of the state. Any of these materials, placed within or where they may enter a stream or lake, by Operator or any party working under contract, or with the permission of the Operator, shall be removed immediately.

Effective erosion control measures shall be in-place at all times during construction. Construction within the 5-year flood plain will not begin until all temporary erosion controls (e.g., straw bales or silt fences that are effectively keyed-in) are in-place down slope of project activities within the riparian area. Erosion control measures shall be maintained throughout the construction period.

Adequate erosion control supplies (gravel, straw bales, shovels, etc.) shall be kept at all restoration sites to ensure sediment is kept out of water bodies. Erosion control measures shall be utilized throughout all phases of operation where sediment runoff from exposed slopes threatens to enter waters of the State. At no time shall silt laden runoff be allowed to enter the stream or be placed where it may enter the stream.

Silty/turbid water from the excavation and/or project activities shall not be discharged into the stream, lake, or into storm drains. Such water shall be pumped into a holding facility or into a settling pond located in flat stable areas outside of the stream channel, or sprayed over a large area outside the stream channel to allow for natural filtration of sediments. At no time shall turbid water from the settling ponds be allowed to enter back into the stream channel until water is clear of silt.

Sediment shall be removed from sediment controls once it has reached one-third of the exposed height of the control. Whenever straw bales are used, they shall be staked and dug into the ground six (6) inches. Catch basins shall be maintained so that no more than six (6) inches of sediment depth accumulates within traps or sumps.

Sediment-laden water created by construction, washing or other activities or shall be filtered before it leaves the right-of-way or enters the stream network or an aquatic resource area. Silt fences or other detention methods shall be installed as close as possible to culvert outlets to reduce the amount of sediment entering aquatic systems.

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Preparation shall be made so that runoff from steep, erodible surfaces will be diverted into stable areas with little erosion potential.

If continued erosion is likely to occur after construction is completed, then appropriate erosion prevention measures shall be implemented and maintained until erosion has subsided.

Upon project completion, all exposed soil present in and around the project site shall be stabilized within seven (7) days.

Work sites will be winterized at the end of each day when significant rains are forecast that may cause unfinished excavations to erode. Winterization procedures shall be supervised by a professional trained in erosion control techniques and involve taking necessary measures to minimize erosion on unfinished work surfaces. Winterization includes the following: smoothing unfinished surfaces to allow water to freely drain across them without concentration or ponding; compacting unfinished surfaces where concentrated runoff may flow with an excavator bucket or similar tool, to minimize surface erosion and the formation of rills; and installation of culverts, silt fences, and other erosion control devices where necessary to convey concentrated water across unfinished surfaces, and trap exposed sediment before it leaves the work site.

Mulching and seeding using local native species mix is required on all exposed soil which may deliver sediment to a stream.

Poured concrete shall be excluded from the wetted channel for a period of two (2) weeks after it is poured. During that time the poured concrete shall be kept moist, and runoff shall not be allowed to enter a live stream. Commercial sealants (e.g. Deep Seal, Elasto-Deck BT Reservoir Grade) may be applied to the poured concrete surface where difficulty in excluding water flow for a long period may occur. If sealant is used, water shall be excluded from the site until the sealant is dry.

#### NOISE

Personnel shall wear hearing protection while operating or working near noisy equipment (producing noise levels ≥85 db, including chain saws, excavators and back hoes).

#### TRANSPORTATION AND TRAFFIC

The potential for impact to emergency vehicle traffic shall be avoided. The Operator shall provide a route for traffic around or through the construction site.

#### RIPARIAN VEGETATION

No more than 1/3 of any willow plant shall be harvested annually. Care shall be taken during harvest not to trample or over harvest the willow sources.

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Planting of seedlings shall begin after December 1, or when sufficient rainfall has occurred to ensure the best chance of survival of the seedlings, but in no case after April 1.

Building materials and/or construction equipment shall not be stockpiled or stored where they could be washed into the water or where they will cover aquatic or riparian vegetation.

The contractor shall not dump any litter or construction debris within the riparian/stream zone. All such debris and waste shall be picked up daily and properly disposed of at an appropriate site. During all activities at project work sites, all trash that may attract predators shall be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris shall be removed from work areas.

The Operator shall retain as many trees and brush as feasible, emphasizing shade producing and bank stabilizing trees and brush.

The Operator shall ensure that the spread or introduction of invasive exotic plants shall be avoided to the maximum extent possible. When practicable, invasive exotic plants at the work site shall be removed.

Cape Ivy (*Delalrea odorata*) removed during the project shall be bagged and appropriately disposed of in a landfill. It shall not be used in composting or left otherwise exposed in or around the project site.

Use project designs and access points that minimize riparian disturbance without affecting less stable areas, which may increase the risk of channel instability.

Minimize compaction by using equipment that either has (relative to other equipment available) less pressure per square inch on the ground or a greater reach, thus resulting in less compaction or less area overall compacted or disturbed.

At the completion of the project, soil compaction that is not an integral element of the design of a crossing should be de-compacted.

Disturbance or removal of vegetation shall not exceed the minimum necessary to complete operations.

Disturbed and compacted areas shall be revegetated with locally obtained native plant species. The species used should be specific to the project vicinity or the region of the state where the project is located, and comprise a diverse community structure (plantings should include both woody and herbaceous species). Plant at a ratio of two plantings to one removed plant.

Unless otherwise specified, the standard for success is 80 percent survival of plantings or 80 percent ground cover for broadcast planting of seed after a period of three (3)

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years. If at the end of three (3) years there is less than 80% survival, all dead plants shall be replaced.

#### OTHER BIOLOGICAL RESOURCES

If any wildlife is encountered during the course of construction, said wildlife shall be allowed to leave the construction area unharmed, and shall be flushed, hazed, or herded in a safe direction away from the project site.

Any equipment entering the active stream (e.g. in the process of installing a coffer dam) shall be preceded by an individual on foot to displace wildlife and prevent them from being crushed.

#### GENERAL MEASURES

All work shall be conducted between the dates of July 1 and October 15.

Upslope work generally occurs during the same period as stream work. Road decommissioning and other sediment reduction activities are dependent on soil moisture content. Work may be delayed at some sites after July 1 to allow soil to dry out adequately; equipment access and effectiveness is inhibited by wet conditions.

ANY OTHER SITE/PROJECT SPECIFIC CONDITIONS SHOULD BE ADDED.)

If the Operator needs more time to complete the authorized activity, the work period may be extended on a day-to-day basis by Krissy Atkinson 831-427-2638, or to the Yountville office at (707) 944-5520.

All habitat improvements shall be done in accordance with techniques in the *California Salmonid Stream Habitat Restoration Manual*. The most current version of the manual is available at: <http://www.dfg.ca.gov/habitats>.

All work shall be done according to the final plans prepared by Operator which were submitted to the Department with the project Notification. Project plans shall be kept on-site during all period of active work.

Prior to commencement of work within the stream zone, the Operator shall photograph the project site. Upon completion of work activities, the Operator shall photograph the project site. Labeled copies of photographs shall be made available to the Department of Fish and Game upon request.

The number of access routes, number and size of staging areas, and the total area of the work site activity shall be limited to the minimum necessary to complete the restoration action.

Installation of bridges, culverts, or other structures shall be such that water flow is not impaired and upstream or downstream passage of fish is assured at all times. Bottoms of temporary culverts shall be placed at or below stream channel grade.

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The Operator shall provide a copy of this agreement to all *contractors and subcontractors* who work within the jurisdiction of this agreement. Copies of this agreement shall be in their possession at the work site during all periods of active work and shall be presented to Department personnel upon demand.

Department personnel or its agents may inspect the work site at any time for the purposes of establishing compliance with this Agreement.

If in the opinion of the Department, conditions arise, or change, in such a manner as to be considered deleterious to the stream or wildlife, operations shall cease until corrective measures approved by the Department are implemented

The Operator is liable for compliance with the terms of this Agreement, including violations committed by the contractors and/or subcontractors. The Department reserves the right to suspend construction activity described in this Agreement if the Department determines any of the following has occurred:

- a) Failure to comply with and of the conditions of this Agreement.
- b) Information provided in support of the Agreement is determined by the Department to be inaccurate.
- c) Information becomes available to the Department that was not known when preparing the original conditions of this Agreement (including, but not limited to, the occurrence of State or federally listed species in the area or risk to resources not previously observed).
- d) The project as described in the Agreement has changed or conditions affecting fish and wildlife resources change.

Any violation of the terms of this Agreement may result in the project being stopped, a citation being issued, or charges being filed with the District Attorney. Contractors and subcontractors may also be liable for violating the conditions of this agreement.

#### AMENDMENTS AND RENEWLS

Prior to the commencement of work, final construction plans shall be submitted to the Department. The Operator shall notify the Department before any modifications are made in the final project description and plans submitted to the Department. Project modifications may require an amendment or a new notification.

This Agreement is transferable to subsequent owners of the project property by requesting an amendment.

To renew the Agreement beyond the expiration date, a written request for a renewal must be submitted to the Department (1600 Program, Post Office Box 47, Yountville, California 94599) for consideration at least 30 days before the Agreement expiration date. A renewal requires a fee. The Fee Schedule can be obtained at [www.dfg.ca.gov/1600](http://www.dfg.ca.gov/1600) or by phone at (707) 944-5520. Renewals of the original Agreement are issued at the discretion of the Department.

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To modify the project, a written request for an amendment must be submitted to the Department (1600 Program, Post Office Box 47, Yountville, California 94599). An amendment requires a fee. The Fee Schedule can be obtained at [www.dfg.ca.gov/1600](http://www.dfg.ca.gov/1600) or by phone at (707) 944-5520. Amendments to the original Agreement are issued at the discretion of the Department.

**Please note that you may not proceed with construction until your proposed project has undergone CEQA review and the Department signs the Agreement.**

**I, the undersigned, state that the above is the final description of the project I am submitting to the Department for CEQA review, leading to an Agreement, and agree to implement the conditions above required by the Department as part of that project. I will not proceed with this project until the Department signs the Agreement. I also understand that the CEQA review may result in the addition of measures to the project to avoid, minimize, or compensate for significant environmental impacts:**

Operator's name (print): Kelly Nelson

Operator's signature:

Signed the 30<sup>th</sup> day of May, 2007

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Exhibit 10. NMFS Biological Opinion

UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
Southwest Region  
501 West Ocean Boulevard, Suite 4200  
Long Beach, California 90802-4200

JUL 27 2006

EXHIBIT NO. 10
APPLICATION NO.
PWP 2-07-04 & SVC NOID 1-07
NMFS Biological Opinion Ref. #SWR200603088

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Lt. Colonel Philip T. Feir, District Engineer  
Department of the Army - San Francisco District  
Corps of Engineers  
333 Market Street  
San Francisco, California 94105-2197

Dear Lt. Colonel Feir:

On March 27, 2006, NOAA's National Marine Fisheries Service's (NMFS) received a request from Mr. Philip Shannin of the San Francisco District of the United States Army Corps of Engineers (Corps) on March 27, 2006, for reinitiation of consultation pursuant to section 7 of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C. 1531 *et seq.*) concerning the existing Clean Water Act (33 U.S.C. 1344) section 404 Regional General Permit 12 (RGP 12), issued to the California Department of Fish and Game (CDFG) on September 8, 2004. RGP 12 authorizes placement of fill material into waters of United States for the purpose of restoring anadromous fish habitat in non-tidal reaches of rivers and streams within the San Francisco District of the Corps. This reinitiation of consultation will address recently designated critical habitat for Central California Coast (CCC) steelhead (*Oncorhynchus mykiss*), South-Central California Coast (SCCC) steelhead, Northern California (NC) steelhead, and California Coastal (CC) Chinook salmon (*O. tshawytscha*). Furthermore, this reinitiation letter will also analyze potential affects resulting from the change in listing status of CCC coho salmon from threatened to endangered, and the change in the way NMFS classifies distinct populations of *O. mykiss*. Finally, this letter transmits amendments to the Terms and Conditions of the original biological opinion that have been agreed upon by NMFS, the Corps and CDFG (enclosure 1). The changes were necessary to ensure CDFG's ability to implement the Terms and Conditions. A copy of the revised RGP 12 Incidental Take Statement is attached to this document (enclosure 2).

#### I. PROJECT DESCRIPTION

Projects that fit within RGP 12 will be implemented as described in NMFS' May 21, 2004, biological opinion (enclosure 3). The proposed action is hereby incorporated by reference. In summary, the Corps proposes to issue a 5-year Department of the Army RGP (expires September 8, 2009) to CDFG pursuant to section 404 of the Federal Clean Water Act for the placement of fill material into the waters of the United States to annually implement anadromous salmonid habitat restoration projects through the CDFG Fisheries Restoration Grant Program (FRGP). The RGP applies to portions of the following coastal counties that are within the regulatory jurisdictional boundaries of the Corps' San Francisco District: San Benito, San Luis Obispo,



Napa, Marin, Sonoma, Mendocino, Humboldt, Del Norte, Siskiyou, Trinity, Glenn, and Lake.

Restoration activities typically occur in watersheds that have been subjected to significant levels of logging, road building, urbanization, mining, grazing, and other activities that have reduced the quality and quantity of instream habitat available for native anadromous salmonids. Types of projects authorized include: instream habitat improvement, fish passage improvement, bank stabilization, riparian restoration, upslope restoration, and fish screens.

In its July 27, 2004, letter to NMFS, CDFG requested that Adaptive Watershed Management funded (Adaptive funded) projects and non-CDFG funded projects be included in RGP 12. Adaptive and non-CDFG funded projects are expected to be similar in scope and magnitude to those projects already covered within the opinion, and will produce similar effects to listed fish and critical habitat. CDFG and NMFS do not expect more than several additional projects per year to result from this inclusion. Due to the anticipated low number of additional projects, NMFS concludes that authorizing Adaptive and non-CDFG funded projects under RGP 12 is unlikely to produce significant effects above and beyond those previously analyzed within the May 21, 2004, opinion. However, inclusion under RGP 12 will be contingent upon each individual project meeting the terms outlined below, which generally ensure that Adaptive and non-CDFG funded projects will undergo the same review process as CDFG-funded projects.

- (a) Projects will adhere to the same requirements as projects that are funded through the FGRP;
- (b) Projects will be high priority projects that were developed with assistance by CDFG;
- (c) Techniques utilized will adhere to the CDFG Habitat Restoration Manual;
- (d) The 1602 Agreement issued by CDFG will be conditioned upon language stated in the mitigated negative declaration and the RGP (including NMFS Terms and Conditions, Clean Water Act 401 and 404 requirements); and
- (e) CDFG oversight will include 100 percent implementation monitoring and 10 percent effectiveness monitoring.

Furthermore, CDFG and the Corps requested the NMFS' RGP 12 opinion cover small fish ladders that are associated with road culvert repair or replacement. During the original 2004 consultation, NMFS, CDFG and the Corps agreed that fish ladder construction would not be covered under RGP 12 due to the extensive design process and construction associated with large fish ladders at dams, waterfalls, and other major instream barriers. However, small fish ladders are sometimes used below road culvert projects in lieu of more traditional grade control weirs, especially in circumstances where weir placement is insufficient to raise downstream water elevations to levels required for fish passage. Fish ladders associated with culvert projects are typically small, several step structures that can easily be reviewed by CDFG or NMFS engineers prior to construction. In addition, constructing a fish ladder for a culvert project would likely affect listed salmonids in the action area in much the same way and to the same extent as downstream weir construction, namely through increased turbidity levels from instream construction activities and possible capture and relocation of listed fish. For these reasons, NMFS hereby amends the proposed action of the 2004 RGP 12 opinion to include fish ladders at

road crossing projects. The design of future fish ladders for culvert projects will require review and concurrence by a NMFS and/or CDFG engineer prior to project construction.

## II. STATUS OF LISTED SPECIES AND CRITICAL HABITAT

The following species and their habitat are present in the action area and are likely to be affected by the proposed action: CC Chinook salmon, CCC coho salmon, Southern Oregon/Northern California Coast (SONCC) coho salmon, CCC steelhead, SCCC steelhead, and NC steelhead. Since the May 21, 2004, biological opinion was issued, NMFS has updated the status review and ESA listing for these species and critical habitats. The information on status from the May 11, 2004, opinion is hereby incorporated by reference, with the following updates (see Table 1 for summary of listing and critical habitat changes):

On June 28, 2005, NMFS published a final rule in the *Federal Register* on the "Final Listing Determinations for 16 Evolutionarily Significant Units (ESU) of West Coast Salmon, and Final 4(d) Protective Regulations for Threatened Salmonid ESUs" (70 FR 37160). This final rule changed the ESA-listing status of one salmon ESU in California, the CCC coho salmon ESU, from threatened to endangered. In addition, the final rule includes the listing of salmon and steelhead hatchery populations.

On January 5, 2006, NMFS published a final listing determination in the *Federal Register* for 10 West Coast steelhead ESUs (71 FR 834). The final rule concluded that all 10 West Coast steelhead populations will be newly classified as Distinct Population Segments (DPS), rather than as ESUs. Use of the DPS policy for steelhead listed in California has led to the change of all steelhead ESUs to DPSs. However, the listed population of steelhead for each DPS remains unchanged from that previously listed as an ESU. For steelhead covered under this consultation, SCCC, CCC, and NC steelhead DPSs remain listed as threatened.

The biological status of the CC Chinook salmon ESU, CCC and SONCC coho salmon ESUs, and SCCC, CCC, and NC steelhead DPSs are similar to that described in the May 21, 2004, biological opinion. The NMFS 2005 status update (Good *et al.* 2005) does include limited new information for all listed salmonids in California. No information exists within this review to suggest new risk factors or ESU/DPS-wide amelioration of risk factors noted in previous status reviews, except for recent changes in ocean conditions. Recent favorable ocean conditions have contributed to apparent increases in abundance and distribution of anadromous salmonids. However, as discussed in Good *et al.* (2005), it is unclear whether this trend will persist. CCC coho salmon ESU status was downgraded from threatened to endangered primarily due to the continued depressed state of coho populations within the southern portion of the ESU, where breeding populations have likely been lost in the Gualala, Garcia and Russian Rivers. However, no new information was provided that suggests additional risks beyond those already considered within the May 21, 2004, biological opinion.

A final rule designating critical habitat for steelhead DPSs and Chinook salmon ESUs in California was published on September 2, 2005 (70 FR 52488). In designating critical habitat, NMFS focuses on the known primary constituent elements essential for the conservation of the

species. These primary constituent elements are those sites and habitat components that support one or more life stages, including: (1) freshwater spawning, (2) freshwater rearing, (3) freshwater migration, (4) estuarine areas. Within primary constituent elements (spawning, rearing, migration, and estuarine areas), essential elements of CC Chinook salmon and NC steelhead critical habitat include adequate (1) substrate, (2) water quality, (3) water quantity, (4) water temperature, (5) water velocity, (6) cover/shelter, (7) food, (8) riparian vegetation, (9) space, (10) safe passage conditions, and (11) salinity conditions (December 10, 2004, 69 FR 71880).

ESU	Listing and critical habitat status as of May 21, 2004	Listing and critical habitat status as of July, 2006
CC Chinook salmon	Threatened - Sept. 16, 1999 (64 FR 50393) CH not yet designated	Threatened - June - 28, 2005 (70 FR 37160) <i>CH designated Sept. 2, 2005 (70 FR 542487)</i>
CCC coho salmon	Threatened - Oct. 31, 1996 (61 FR 56138) CH designated May 5, 1999 (64 FR 24049)	<i>Endangered - June 28, 2005 (70 FR 37160)</i> CH designated May 5, 1999 (64 FR 24049)
SONCC coho salmon	Threatened - May 6, 1997 (62 FR 24588) CH designated May 5, 1999 (64 FR 24049)	Threatened - June - 28, 2005 (70 FR 37160) CH designated May 5, 1999 (64 FR 24049)
CCC steelhead	Threatened - Aug. 18, 1997 (62 FR 43937) CH not yet designated	Threatened - Jan. 5, 2006 (71 FR 834) <i>CH designated Sept. 2, 2005 (70 FR 542487)</i>
SCCC steelhead	Threatened - Aug. 18, 1997 (62 FR 43937) CH not yet designated	Threatened - Jan. 5, 2006 (71 FR 834) <i>CH designated Sept. 2, 2005 (70 FR 542487)</i>
NC steelhead	Threatened - June 7, 2000 (65 FR 36074) CH not yet designated	Threatened - Jan. 5, 2006 (71 FR 834) <i>CH designated Sept. 2, 2005 (70 FR 542487)</i>

**Table 1:** Summary of listing and critical habitat (CH) changes between the original opinion date (May 21, 2004) and July, 2006 (changes shown in *italics*).

### III. ENVIRONMENTAL BASELINE

The environmental baseline is described in the May 21, 2004, biological opinion and is hereby incorporated by reference. The quality and spatial extent of critical habitat for listed Chinook salmon, coho salmon and steelhead varies widely throughout the action area. However, since the proposed action is restorative in nature, much of the habitat that may be affected by the action is likely in fair to poor condition. During the 2004 field season, 274 instream structures were installed, 21,316 riparian trees were planted, 137 miles of upslope roads were treated (preventing 61,075 cubic yards of sediment from entering fish bearing streams), and over 20 miles of instream habitat were recovered through the replacement/improvement of 27 culvert stream-crossings.

### IV. EFFECTS OF THE ACTION ON CRITICAL HABITAT FOR CC CHINOOK SALMON AND SCCC STEELHEAD, CCC STEELHEAD, AND NC STEELHEAD

Critical habitat is defined as the specific areas within the geographical areas occupied by the species, at the time it is listed, on which are found those physical and biological features essential to the conservation of the species and which may require special management considerations or protection, or specific areas outside the geographical area occupied by the

species at the time it is listed when the Secretary determines that such areas are essential for the conservation of listed species. The ESA further defines conservation as Ato use all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to the ESA are no longer necessary. As a result, NMFS approaches its Adestruction and adverse modification determinations by examining the effects of actions on the conservation value of the designated critical habitat; that is, the value of the critical habitat for the conservation of threatened or endangered species.

Although critical habitat for Chinook salmon and steelhead was not designated at the time, the May 21, 2004, opinion analyzed the effects of the proposed action on designated critical habitat for SONCC and CCC coho salmon. These effects remain unchanged and are hereby incorporated by reference. Effects resulting from the inclusion of fish ladder construction at road crossings into the proposed action are anticipated to be similar to those already considered previously for culvert projects. The biological opinion also discussed in detail the effects to Chinook salmon and steelhead habitat within the action area arising from the proposed action. In summary, a small subsection of restoration projects (*i.e.*, those that include instream construction work) are expected to affect critical habitat via temporarily elevated instream turbidity levels and dewatering sections of stream channel during instream construction activities. However, both of these habitat effects were considered minimal due to their temporary nature and limited intensity (*e.g.*, historic water quality monitoring below recently replaced culverts showed turbidity levels were far below those likely to cause injury or death). Also, the anticipated vast spatial distribution of restoration projects throughout the large action area ensured that habitat effects would not have an additive effect within a single watershed.

Recently designated Chinook salmon and steelhead critical habitat will be affected in much the same manner and to the same extent as generally described habitat effects within the May 21, 2004, opinion. Although there will likely be short-term impacts to listed critical habitat associated with a small percentage of projects implemented annually, NMFS anticipates most projects will provide long-term benefits to salmonid habitat.

## V. CONCLUSION

After reviewing the best available scientific and commercial information, the current status of CC Chinook salmon and SCCC, CCC, and NC steelhead critical habitat, the environmental baseline for the action area, the anticipated effects of the proposed action, and the cumulative effects, it is NMFS' biological opinion that the implementation of the proposed action, as described, is not likely to destroy or adversely modify the designated critical habitats of CC Chinook salmon and SCCC, CCC, and NC steelhead.

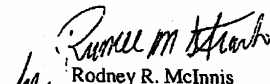
NMFS also has also reviewed potential adverse impacts to listed salmonids arising from two other recent regulatory actions undertaken by the agency: (1) downgrading the listing status of the CCC coho salmon ESU from threatened to endangered, and (2) changing the description of a

NMFS also has also reviewed potential adverse impacts to listed salmonids arising from two other recent regulatory actions undertaken by the agency: (1) downgrading the listing status of the CCC coho salmon ESU from threatened to endangered, and (2) changing the description of a distinct steelhead population for ESA listing purposes from ESU to Distinct Population Segment (DPS). The most recent status review (Good et al. 2005) noted that no new information was available that suggested additional risks to CCC coho salmon beyond those already considered within the May 21, 2004, biological opinion. Therefore, downgrading the CCC coho salmon ESU from threatened to endangered status (June 28, 2005, 70FR37160) will not require further effects analysis above and beyond those already conducted within the original opinion. The change in steelhead classification to DPS has not changed the defined geographic boundaries or population composition already established under the ESU system. Thus, the change in steelhead classification from ESU to DPS does not require further analysis.

This concludes reinitiation of consultation. As provided in 50 CFR '402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action (including the project change) has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded, (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered, (3) the identified action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in the biological opinion, or (4) a new species is listed or critical habitat designated that may be affected by the identified action. In instances where the amount or extent of incidental take is exceeded, formal consultation shall be reinitiated immediately.

If you have any questions or concerns regarding this consultation, please contact Mr. Rick Rogers (Arcata Area Office) at 707-825-5167 (rick.rogers@noaa.gov) or Mr. Jeffrey Jahn (Santa Rosa Area Office) at 707-575-6097 (jeffery.jahn@noaa.gov).

Sincerely,

  
Rodney R. McInnis  
Regional Administrator

Literature Cited

Good, T. P., R. S. Waples, and P. Adams (editors). 2005. Updated status of federally listed ESUs of West Coast salmon and steelhead. U.S. Dept. of Commerce, NOAA Tech. Memo. NMFS-NWFSC-66. 597pp.



Enclosures:

1. Amendments to the Terms and Conditions and proposed action NMFS 2004 RGP Biological Opinion
2. New RGP 12 Incidental Take Statement
3. Original May 21, 2004, biological opinion and ITS

cc: Mark Davignon, Corps, San Francisco District  
Holly Sheridan, CDFG, Sacramento, CA  
Gary Flosi, CDFG, Fortuna, CA  
Bob Coey, CDFG, Yountville, CA

**Enclosure 1**

The United States Army Corps of Engineers (Corps) issued Regional General Permit (RGP) 12 to the California Department of Fish and Game (CDFG) on September 8, 2004. RGP 12 authorizes the placement of fill material into the waters of the United States in non-tidal reaches of rivers and streams within the San Francisco District of the Corps associated with anadromous fisheries habitat restoration projects funded through the CDFG Fishery Restoration Grant Program (FRGP). The amendments to the Terms and Conditions of the National Marine Fisheries Service's (NMFS) May 21, 2004, biological opinion (opinion) presented below are the result of discussions and correspondence between NMFS and CDFG, including CDFG's initial July 27, 2004, letter to NMFS and NMFS' August 27, 2004, response.

Term and Condition 3(g)

NMFS has determined that the riparian monitoring required under Term and Condition 3(g) is not likely feasible considering the current 3-year grant cycle. Therefore, NMFS has deleted Term and Condition 3(g) from the May 21, 2004, RGP 12 opinion. Instead, riparian monitoring will be accomplished through the effectiveness monitoring requirement in the modified Term and Condition 5(e).

Term and Condition 4(b)

CDFG commented that hiring a full time geologist to monitor winterizing procedures, as required in Term and Condition 4(b), is not economically feasible, and that CDFG personnel trained in erosion control techniques can adequately perform the necessary monitoring. NMFS agrees with CDFG on this point and, therefore, has amended Term and Condition 4(b) of the May 21, 2004, RGP 12 opinion as follows: the sentence "Winterization procedures shall be supervised by a qualified geologist and involve taking necessary measures to minimize erosion on unfinished work surfaces." is replaced with the sentence "Winterization procedures shall be supervised by a professional trained in erosion control techniques and involve taking necessary measures to minimize erosion on unfinished work surfaces."

Term and Condition 5(e)

NMFS has revised Term and Condition 5(e) to require mandatory effectiveness monitoring instead of validation monitoring. Based on discussions at an interagency meeting in Ukiah, California on December 7, 2004, NMFS agrees that validation monitoring is not necessary to document and track project-related effects and that effectiveness monitoring will sufficiently address those effects during the lifetime of RGP 12. A random sample, stratified by project type and region, will be chosen from the pool of completed projects on an annual basis for the term of RGP 12. Each project included in the 10 percent selection will be monitored once for effectiveness within 3 years following project completion. Both implementation [Term and Condition 5(d)] and effectiveness monitoring [modified Term and Condition 5(e)] will be conducted as outlined in the most recent version of the Restoration Effectiveness and Validation Monitoring Protocols or the latest edition of the Restoration Manual (inclusive of a chapter on Restoration Effectiveness and Evaluation Monitoring Protocols). NMFS anticipates working closely with CDFG in developing both the Restoration Effectiveness and Validation Monitoring

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Protocols, and the Coastal Salmonid Monitoring Plan, to jointly address FRGP validation in the future.

Enclosure 2

**IX. INCIDENTAL TAKE STATEMENT**

**Note:** This incidental take statement supercedes the one enclosed within the May 21, 2004 opinion.

Section 9 of the ESA and Federal regulation pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by NMFS as an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation which actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are nondiscretionary, and must be undertaken by the Corps so that they become binding conditions of any grant or permit issued to CDFG for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps (1) fails to assume and implement the terms and conditions or (2) fails to require CDFG to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the Corps or CDFG must report the progress of the action and its impact on the species to NMFS as specified in the incidental take statement [50 CFR ' 402.14(i)(3)].

**A. Amount or Extent of Take**

The amount or extent of take resulting from specific actions proposed under the RGP cannot be quantified for each individual project due to uncertainty in the scope and location of these actions. Spatial limitation specified in the project description and location and extent of actions completed by CDFG in the past allow us to identify the maximum area of aquatic habitat likely to be disturbed at each individual project site that could result in take of listed salmonids, that is, 500 feet of contiguous stream reach. In general, incidental take is expected to be in the form of injury or mortality due to handling during capture and relocation or mortality during dewatering, or temporary displacement and/or reduction in feeding from elevated turbidity levels. Mortality from relocation activities is anticipated to be no more than three percent of juvenile salmonids inhabiting each individual project action area.

Dam removal projects, fish ladder projects (except those associated with a road culvert crossing), fish hatchery/fish stocking projects, watershed stewardship training, salmon in the classroom,

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obstruction blasting (with explosives) projects, and projects that would dewater or disturb more than 500 feet of contiguous stream reach were not analyzed in the May 21, 2004 original opinion or July 2005 amended opinion. These projects will require separate section 7 consultations to determine impacts to listed salmonids.

**B. Effect of the Take**

In the accompanying opinion, NMFS determined that this level of anticipated take is not likely to result in jeopardy to CC Chinook salmon, CCC coho salmon, SONCC coho salmon, CCC steelhead, SCCC steelhead, and NC steelhead.

**C. Reasonable and Prudent Measures**

NMFS believes the following reasonable and prudent measures are necessary and appropriate to minimize take of SONCC coho salmon, CCC coho salmon, NC steelhead, CCC steelhead and/or S-CCC steelhead:

1. Measures shall be taken to minimize harm and mortality to listed salmonids resulting from fish relocation and dewatering activities.
2. Measures shall be taken to minimize harm to listed salmonids resulting from culvert replacement activities and other instream construction work.
3. Measures shall be taken to minimize harm to listed salmonids resulting from construction within the riparian corridor.
4. Measures shall be taken to minimize harm to listed salmonids resulting from road decommissioning activities.
5. Measures shall be taken to ensure that individual restoration projects authorized annually through the RGP will minimize take of listed salmonids, monitor and report take of listed salmonids, and to obtain specific project information to better account for the effects and benefits of salmonid restoration projects authorized through the RGP.

**D. Terms and Conditions**

In order to be exempt from the prohibitions of section 9 of the ESA, the Corps and the permittee (CDFG) must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are nondiscretionary.

1. The following terms and conditions implement Reasonable and Prudent Measure 1, which states that measures shall be taken to minimize harm and mortality to listed salmonids resulting from fish relocation and dewatering activities:

- a. Fish relocation and dewatering activities shall only occur between June 15 and November 1 of each year.
  - b. The Corps and/or CDFG shall minimize the amount of wetted stream channel that is dewatered at each individual project site to the fullest extent possible.
  - c. All electrofishing shall be performed by a qualified fisheries biologist and conducted according to the National Marine Fisheries Service *Guidelines for Electrofishing Waters Containing Salmonids Listed Under the Endangered Species Act*, June 2000.
  - d. Fish relocation data must be provided annually as described in Term and Condition 5c below.
2. The following terms and conditions implement Reasonable and Prudent Measure 2, which states that measures shall be taken to minimize harm to listed salmonids resulting from culvert replacement activities and other instream construction work.
- a. All culvert replacement or modification designs must be visually reviewed and authorized by NMFS (or CDFG) engineers prior to commencement of work.
  - b. If the stream in the project location was not passable to or was not utilized by all life stages of all covered salmonids prior to the existence of the road crossing, the project shall pass the life stages and covered salmonid species that historically did pass there. Retrofit culverts shall meet the fish passage criteria for the passage needs of the listed species and life stages historically passing through the site prior to the existence of the road crossing.
  - c. Effective erosion control measures shall be in place at all times during construction. Construction within the 5-year flood plain will not begin until all temporary erosion controls (e.g., straw bales, silt fences that are effectively keyed in) are in place downslope of project activities within the riparian area. Erosion control structures shall be maintained throughout the construction period. If continued erosion is likely to occur after construction is completed, then appropriate erosion prevention measures shall be implemented and maintained until erosion has subsided.
  - d. Sediment shall be removed from sediment controls once it has reached one-third of the exposed height of the control. Whenever straw bales are used, they shall be staked and dug into the ground 12 cm. Catch basins shall be maintained so that no more than 15 cm of sediment depth accumulates within traps or sumps.

- e. Sediment-laden water created by construction activity shall be filtered before it leaves the right-of-way or enters the stream network or an aquatic resource area. Silt fences or other detention methods shall be installed as close as possible to culvert outlets to reduce the amount of sediment entering aquatic systems.
  - f. Upon project completion, all exposed soil present in and around the project site shall be stabilized within 7 days.
3. The following terms and conditions implement Reasonable and Prudent Measure 3, which states that measures shall be taken to minimize harm to listed salmonids resulting from construction within the riparian corridor.
- a. Retain as many trees and brush as feasible, emphasizing shade producing and bank stabilizing trees and brush.
  - b. Use project designs and access points that minimize riparian disturbance without affecting less stable areas, which may increase the risk of channel instability.
  - c. Minimize compaction by using equipment that either has (relative to other equipment available) less pressure per square inch on the ground or a greater reach, thus resulting in less compaction or less area overall compacted or disturbed.
  - d. At the completion of the project, soil compaction that is not an integral element of the design of a crossing should be decompacted.
  - e. Disturbed and compacted areas shall be revegetated with native plant species. The species used should be specific to the project vicinity or the region of the state where the project is located, and comprise a diverse community structure (plantings should include both woody and herbaceous species). Plant at a ratio of 2 plantings to 1 removed plant.
  - f. Unless otherwise specified, the standard for success is 80 percent survival of plantings or 80 percent ground cover for broadcast planting of seed after a period of 3 years.
4. The following terms and conditions implement Reasonable and Prudent Measure 4, which states that measures shall be taken to minimize harm to listed salmonids resulting from road decommissioning activities.
- a. Woody debris will be concentrated on finished slopes adjacent to stream crossings to reduce surface erosion, contribute to amounts of organic debris in the

soil, encourage fungi, provide immediate cover for small terrestrial species, and to speed recovery of native forest vegetation.

b. Work sites will be winterized at the end of each day when significant rains are forecast that may cause unfinished excavations to erode. Winterization procedures shall be supervised by a professional trained in erosion control techniques and involve taking necessary measures to minimize erosion on unfinished work surfaces. Winterization includes the following: smoothing unfinished surfaces to allow water to freely drain across them without concentrating or ponding; compacting unfinished surfaces where concentrated runoff may flow with an excavator bucket or similar to minimize surface erosion and the formation of rills; and installation of culverts, silt fences and other erosion control devices where necessary to convey concentrated water across unfinished surfaces, and trap eroded sediment before it leaves the work site.

c. Adequate erosion control supplies (gravel, straw bales, shovels, *etc.*) shall be kept at all restoration sites to ensure materials are kept out of water bodies.

5. The following terms and conditions implement Reasonable and Prudent Measure 5, which states that measures shall be taken to ensure that individual restoration projects authorized annually through the RGP will minimize take of listed salmonids, monitor and report take of listed salmonids, and to obtain specific project information to better account for the effects and benefits of salmonid restoration projects authorized through the RGP.

a. The Corps and/or CDFG shall provide NMFS notification of projects that are authorized through the RGP. The notification shall be submitted at least 14 days prior to project implementation and must contain specific project information (name of project, type of project, location of project including: HUC, creek, or watershed, city or town, and county). This shall be submitted annually to the following NMFS offices:

National Marine Fisheries Service  
Santa Rosa Area Office Supervisor  
Protected Resources Division  
777 Sonoma Avenue, Room 325  
Santa Rosa, California 95404

National Marine Fisheries Service  
Arcata Area Office Supervisor  
1655 Heindon Road  
Arcata, California 95521

b. Restoration, construction, fish relocation, and dewatering activities within any wetted and/or flowing creek channel shall only occur between June 15 and November 1 of each year.



c. In order to monitor the impact to, and to track incidental take of listed salmonids, the Corps and/or CDFG must annually submit to NMFS a report of the previous years restoration activities. The annual report shall include a summary of the specific type and location of each project, stratified by individual project, 4<sup>th</sup> field HUC and ESU. The report shall include the following project-specific summaries, stratified at the individual project, 4<sup>th</sup> field HUC and ESU level:

- A summary detailing fish relocation activities, including the number and species of fish relocated and the number and species injured or killed.
- The number and type of instream structures implemented within the stream channel.
- The length of streambank (feet) stabilized or planted with riparian species.
- The number of culverts replaced or repaired, including the number of miles of restored access to unoccupied salmonid habitat.
- The distance (miles) of road decommissioned.
- The distance (feet) of aquatic habitat disturbed at each project site.

This report shall be submitted annually by March 1 to the following NMFS offices:

National Marine Fisheries Service  
Santa Rosa Area Office Supervisor  
Protected Resources Division  
777 Sonoma Avenue, Room 325  
Santa Rosa, California 95404

National Marine Fisheries Service  
Arcata Area Office Supervisor  
1655 Heindon Road  
Arcata, California 95521

d. The Corps and/or CDFG shall perform implementation monitoring on all completed restoration activities annually. A copy of the final report shall be submitted no later than March 1 annually to NMFS at the addresses provided above.

e. The Corps and/or CDFG shall perform effectiveness monitoring on at least 10 percent of completed restoration projects annually. A random sample, stratified by project type and region, will be chosen from the pool of completed projects on an annual basis for the term of RGP 12. Each project included in the 10 percent selection will be monitored once for effectiveness within three years following project completion. A copy of the final report shall be submitted no later than March 1 annually to NMFS at the addresses provided above.

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- f. The Corps and/ or CDFG shall incorporate project data into a format compatible with the CDFG/NMFS/Pacific Fisheries Management Council Geographic Information System (GIS) database, ultimately allowing scanned project-specific reports and documents to be linked graphically within the GIS database.

Enclosure 3



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL MARINE FISHERIES SERVICE  
Southwest Region  
501 West Ocean Boulevard, Suite 4200  
Long Beach, California 90802-4213

MAY 21 2004

In response refer to:  
151422SWR03AR8912:FRR/JTJ

Lieutenant Colonel Michael McCormick, District Engineer  
United States Department of the Army  
Corps of Engineers, San Francisco District  
333 Market St. 8<sup>th</sup> Floor  
San Francisco, California 94105-2197

Dear Colonel McCormick:

This document transmits the National Marine Fisheries Service's (NOAA Fisheries) biological opinion (Enclosure) based on our review of the United States Army Corps of Engineers (Corps), San Francisco District's proposed issuance of a five-year Regional General Permit (RGP) to the California Department of Fish and Game (CDFG) pursuant to section 404 of the Clean Water Act (33 U.S.C. 1344). The biological opinion analyzes the effects of the proposed RGP on threatened Southern Oregon/Northern California Coast coho salmon (*Oncorhynchus kisutch*), threatened Central California Coast coho salmon, threatened Northern California steelhead (*O. mykiss*), threatened Central California Coast steelhead, threatened South-Central California Coast steelhead, and on designated critical habitat for Central California Coast coho salmon in accordance with section 7 of the Endangered Species Act of 1973, as amended (ESA; 16 U.S.C. 1531 *et seq.*).

The RGP will authorize the placement of fill material into the waters of the United States to annually implement multiple anadromous salmonid habitat restoration projects and will apply to portions of the following coastal counties that are within the regulatory jurisdictional boundaries of the Corps' San Francisco District: San Benito, San Luis Obispo, Monterey, Santa Cruz, San Mateo, Santa Clara, San Francisco, Alameda, Contra Costa, Solano, Napa, Marin, Sonoma, Mendocino, Humboldt, Del Norte, Siskiyou, Trinity, Glen, and Lake. Restoration activities typically occur in watersheds that have been subjected to significant levels of logging, road building, urbanization, mining, grazing, and other activities that have reduced the quality and quantity of instream habitat available for native anadromous salmonids. Types of projects to be authorized include: instream habitat improvement, fish passage improvement, bank stabilization, riparian restoration, upslope restoration, and fish screens.



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**United States Department of the Interior**

**FISH AND WILDLIFE SERVICE**

Sacramento Fish and Wildlife Office  
2800 Cottage Way, Room W-2605  
Sacramento, California 95825-1846



In reply refer to:  
1-1-03-F-273

**Exhibit 11. USFWS Biological  
Opinion**

Mr. Calvin C. Fong  
Chief, Regulatory Branch  
(Attn: Mark D'Avignon)  
U.S. Army Corps of Engineers  
San Francisco District  
333 Market Street  
San Francisco, California 94105-2197

<b>EXHIBIT NO.</b> 11
<b>APPLICATION NO.</b>
PWP 2-07-04 & SYC NOID 1-07
USFWS Biological Opinion Ref. # 1-1-03-F-273
(Page 1 of 32)

**YOUNTVILLE**

**Subject:** Programmatic Formal Endangered Species Consultation on the Regional General Permit for California Department of Fish and Game Anadromous Fisheries Restoration Grants Program, Corps Permit No. 27922N and 22323N

Dear Mr. Fong:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion based on our review of the U.S. Army Corps of Engineers' (Corps) proposed issuance of a Regional General Permit, pursuant to section 404 of the Federal Water Pollution Control Act, as amended (Clean Water Act), authorizing projects funded by the California Department of Fish and Game (CDFG) Fisheries Restoration Grant Program (Program) in Alameda, Contra Costa, Lake, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma counties, California. At issue are the effects of the proposed action on the endangered California freshwater shrimp (*Syncaris pacifica*) (shrimp) and threatened California red-legged frog (*Rana aurora draytonii*) red-legged frog. This document does not address project effects on the San Francisco garter snake (*Thamnophis sirtalis tetratenia*). Your July 30, 2003, request to initiate consultation was received in our office August 1, 2003. This document is provided in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act).

In your letter dated July 30, 2003, you requested our concurrence that the proposed authorization is not likely to adversely affect the shrimp, red-legged frog or its proposed critical habitat, threatened marbled murrelet (*Brachyrampus marmoratus*), threatened northern spotted owl (*Strix occidentalis caurina*), endangered Sonoma County Distinct Population Segment (DPS) and proposed threatened Central California DPS of the California tiger salamander (*Ambystoma californiense*), and the endangered least Bell's vireo (*Vireo bellii pusillus*). You reached this conclusion based on the proposed implementation of several measures intended to avoid effects to these species from project activities.

**TAKE PRIDE  
IN AMERICA** 

Mr. Calvin C. Fong

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We concur with your determination that the proposed authorization may affect, but is not likely to adversely affect, the marbled murrelet and northern spotted owl. Our concurrence is based on the following factors:

1. Qualified biologists will conduct protocol surveys for spotted owls and marbled murrelets at proposed project sites which contain potential habitat;
2. Work will not be conducted within 0.25 mile of any site with known or potential marbled murrelet habitat between November 1 and September 15, or known or potential spotted owl habitat between November 1 and July 31. If protocol surveys determine that nesting spotted owls or marbled murrelets do not occur within 0.25 mile of a specific project site, project activities at that site may commence prior to September 15; and
3. Project activities will not remove or degrade suitable spotted owl or marbled murrelet habitat.

We concur with your determination that the proposed authorization may affect, but is not likely to adversely affect, the least Bell's vireo. Our concurrence is based on the following factors:

1. Protocol surveys for least Bell's vireo will be conducted at proposed project sites by a qualified biologist knowledgeable in least Bell's vireo identification and biology;
2. Work will not begin within 0.25 mile of any site with known or potential least Bell's vireo habitat until after September 15; and
3. Willow branches will not be harvested at any site with potential least Bell's vireo habitat between March 1 and September 15.

We concur with your determination that the proposed authorization may affect, but is not likely to adversely affect, the California tiger salamander. Our concurrence is based on the following factors:

1. Most of the proposed projects will occur in or near streams and riparian corridors;
2. Upslope projects will be limited to road upgrading and decommissioning in areas that are steep, eroding, and often vegetated with trees and shrubs; and
3. California tiger salamanders use ponds and vernal pools for breeding, and existing burrows in grassland habitat for estivation. Neither of these habitat types is usually located in proximity to anadromous fish-bearing streams.

We concur with your determination that the proposed authorization may affect, but is not likely to adversely affect, proposed critical habitat for the red-legged frog. Our concurrence is based on the following factors:

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1. Projects implemented under the proposed authorization will not damage or deteriorate any of the primary constituent elements (essential aquatic habitat, associated upland habitat, and dispersal habitat) of the proposed critical habitat as defined in the proposed designation (69 FR 19620);
2. Restoration projects implemented under the proposed authorization within proposed critical habitat units will likely improve the quality of red-legged frog habitat in these areas. This will improve the function and productivity of the proposed critical habitat units for red-legged frogs; and
3. Restoration projects implemented under the proposed authorization will revitalize degraded or impaired aquatic and riparian habitats. This will provide a long-term benefit to the shrimp and red-legged frog, and result in higher quality habitat in dispersal corridors and core areas.

We do not concur with your determination that the proposed authorization may affect, but is not likely to adversely affect, the shrimp and the red-legged frog. We believe that the proposed authorization may adversely affect these species. Factors contributing to this determination are the proposed relocation of shrimp and red-legged frogs project areas and use of heavy equipment in or near shrimp or red-legged frog habitat. The Service believes that these activities may adversely affect them and thereby warrant formal consultation. No critical habitat has been designated for the shrimp.

This biological opinion is based on information provided in (1) The June 25, 2003, Corps Public Notice; (2) the 2003 Mitigated Negative Declaration for the Fisheries Restoration Grant Program; (3) numerous emails from Fish and Game to Cecilia Brown of the Service; and (4) information in Service files. A complete administrative record of this consultation is on file in this office.

#### Consultation History

In your letter requesting our concurrence, you requested initiation of formal consultation if the Service did not concur with your determination. Therefore, we considered your July 30, 2003, letter to be a request for initiation of formal consultation on the potential effects of the proposed authorization on the shrimp and the red-legged frog. During this process, several conference calls were held between staff members of the Corps, CDFG, National Marine Fisheries Service, and the Service to clarify the Corps' effects determinations, project description, and proposed protective measures. On May 8, 2004, the Corps and the CDFG provided us with the final information necessary to proceed with this consultation (CDFG 2004).

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## BIOLOGICAL OPINION

### Description of the Proposed Action

The Corps proposes to issue a Regional General Permit authorizing the CDFG to fund and carry out various salmonid habitat enhancement and restoration projects through implementation of the Program. The Regional General Permit would have a term of 5 years from the date of authorization. Program activities are proposed annually for various watersheds throughout Alameda, Contra Costa, Del Norte, Glenn, Humboldt, Lake, Marin, Mendocino, Monterey, Napa, San Benito, San Francisco, San Luis Obispo, San Mateo, Santa Clara, Santa Cruz, Siskiyou, Solano, Sonoma, Trinity, and Ventura counties. The Corps' proposed authorization addressed by this consultation would apply only to Program projects in counties within the regulatory jurisdictional boundaries of the Corps' San Francisco District. Of the resulting geographic area, the Sacramento Fish and Wildlife Office has regulatory purview only over Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma Counties. Therefore, this consultation pertains only to Program projects utilizing the proposed authorization that are executed in Alameda, Contra Costa, Lake, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma counties, with the exception of streams, ponds, wetlands, and uplands in San Mateo County which are within the range of the San Francisco garter snake. Projects conducted under this permit within the range of the San Francisco garter snake are not analyzed in this opinion and require separate consultation.

Individual restoration projects would involve the application of one or more of the restoration treatments described in Parts VII, IX, X and XI of the California Salmonid Stream Habitat Restoration Manual (Restoration Manual) (CDFG 2002) with the exception of dam removal. Dam removal activities are not addressed in this consultation due to the varying potential effects of sediment mobilization and require separate consultation.

All projects would be restricted to, and carried out in accordance with, techniques identified in the Restoration Manual. The following descriptions of restoration treatments are summarized from the Restoration Manual; these descriptions are not intended to be exhaustive. For more detailed information on specific project methods, Parts VII, IX, X and XI of the Restoration Manual is hereby incorporated by reference. In the following discussion, use of heavy equipment refers to one or more of the following types: hydraulic excavator, front-end loader, self-propelled logging yarder, or backhoe. The following projects and treatments are among those proposed:

1. Instream Habitat Improvements
  - a. Installation of cover structures such as logs, root wads, tree bundles, and boulders using heavy equipment. Cover structures are used to increase the quality of pool habitat in a stream.

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- b. Installation of boulder structures such as boulder weirs, boulder clusters, and boulder wing-deflectors using heavy equipment. Boulder structures are used to break up or diversify stream flow in a particular stream reach, to provide instream cover for juvenile salmonids and spawning adults, or to recruit spawning gravel.
- c. Installation of log structures such as log weirs, log wing-deflectors, divide logs, digger logs, and Hewitt ramps using heavy equipment and manual labor. Log structures are used to provide instream cover for juvenile salmonids and spawning adults, to scour pools for rearing habitat, to recruit spawning gravel, and to stabilize eroding stream banks.
- d. Placement of spawning gravel using heavy equipment. Gravel would be clean, creek-run ranging from 0.5 inch to 4 inches in diameter.
- e. Installation of fish screens at water diversion intake sites. Fish screens are used to prevent entrainment of juvenile salmonids and other wildlife in water diverted for agriculture, power generations, or domestic use on both gravity flow and pump diversion systems. Fish screens typically consist of perforated metal plate or mesh material with openings sized to prevent entrainment of aquatic wildlife.

2. Fish Passage

- a. Modification of obstructions such as log jams or beaver dams would be conducted to facilitate fish passage. Log barriers would be modified using either manual labor or heavy equipment.
- b. Modification of waterfalls and chutes would be conducted by blasting resting pools into bedrock, forming a step-and-pool passage for fish.
- c. Modification of landslides would be conducted using either manual labor or heavy equipment such as a hydraulic excavator.
- d. Man-made obstructions such as dams, sills, and culverts would be addressed through construction of fishways such as step-and-pool, Denil ladders, and Alaskan steep-pass fishways.
- e. Culvert modification would involve either construction of back-flooding weirs downstream of the culvert outflow, or installation of baffles within the culvert.

3. Watershed and Stream Bank Stabilization

- a. Boulder riprap to armor stream banks would be installed using heavy equipment such as a hydraulic excavator or backhoe. A gravel blanket or geotextile fabric would be placed on the soil in the area to be covered by riprap. Riprap would be



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installed beginning in a trench dug at the toe of the bank, and extending up the stream bank to the bankfull discharge level.

- b. Log stream bank stabilization structures such as cribbing or bank armoring would be installed using heavy equipment. Log structures may also be installed using manual labor in areas without access for heavy equipment. These structures would be installed by stacking logs against the stream bank and securing them using threaded rebar and/or steel cable. Base logs are placed in a toe trench below stream grade. When installing log cribbing, tieback logs are imbedded 4-6 feet into the slope perpendicular to the direction of stream flow. When installing log bank armoring, metal fence posts, culvert stakes, or 'deadman' structures would be substituted for tieback logs.
- c. Tree revetments would be used to stabilize vertical, eroding stream banks in low gradient meadow streams. Trees would be cut and laid against the vertical bank, using either heavy equipment or manual labor, with the tree tops angling downstream. Tree bases would be tied off to the upper stream bank. Branches slow the water velocity and cause suspended sediment to settle, allowing banks to rebuild and vegetation to re-establish.
- d. Mulching for erosion control would be conducted by applying weed-free straw or forest leaf litter to bare soil.
- e. Revegetation would be accomplished by transplanting, planting container-grown or bare root stock, or sprigging (inserting cut stakes of willow or cottonwood). Transplanting would typically be done using hand excavation. In hard soils an iron bar or power auger would be used to bore planting holes for cut stakes; otherwise, cut stakes would be driven into the soil by hand.
- f. Willow wall revetments, brush mattresses, and willow siltation baffles would also be used to stabilize and revegetate degraded stream banks. These treatments would involve combinations of the following: excavation of a trench at the toe of the stream bank, installation of willow poles perpendicular to the stream bank, weaving willow branches throughout the standing willow poles, or placing and compressing willow branches on the stream bank's soil surface parallel to the stream channel.
- g. Check dams are small dams (less than 10 feet in height) that would be installed across small drainages to reduce water velocity and trap sediment. Check dams would be constructed using straw bales, rock, brush, small trees, redwood boards, or compacted earth.
- h. Water bars would be installed as a temporary means of breaking surface flow over sloped sections of road using hand tools or heavy equipment. Water bars consist

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of a shallow ditch and rounded berm, less than 2 feet in height, placed diagonally across a road surface.

- i. Exclusionary fencing would be installed to prevent livestock from overgrazing riparian vegetation, reducing water quality, and compromising stream bank integrity. Fencing would be constructed approximately parallel to the stream channel, with a setback of at least 25 feet from the top of the stream bank.

*Minimization Measures*

The CDFG proposes to implement the following measures to minimize adverse effects to the red-legged frog and its habitat (CDFG 2004):

1. At least 15 days prior to the onset of activities, the CDFG will submit the name(s) and credentials of biologists who would conduct activities specified in the following measures. No project activities will begin until the CDFG has received written approval from the Service that the biologist(s) is qualified to conduct the work.
2. A Service-approved biologist will survey the work site at least two weeks before the onset of activities. If red-legged frogs are found in the project area and these individuals are likely to be killed or injured by work activities, the Service-approved biologist will be allowed sufficient time to move them from the site before work activities resume. Only Service-approved biologists will participate in activities associated with the capture, handling, and monitoring of red-legged frogs.
3. Before any construction activities begin on a project, a Service-approved biologist will conduct a training session for all construction personnel. At a minimum, the training shall include a description of the red-legged frog and its habitat, the importance of the red-legged frog and its habitat, the general measures that are being implemented to conserve the red-legged frog as they relate to the project, and the boundaries within which the project may be accomplished. Brochures, books and briefings may be used in the training session, provided that a qualified person is on hand to answer any questions.
4. A Service-approved biologist shall be present at the work site until such time as all removal of red-legged frogs, instruction of workers, and habitat disturbance has been completed. The Service-approved biologist shall have the authority to halt any action that might result in impacts that exceed the levels anticipated by the Corps and Service during review of the proposed action. If work is stopped, the Corps and Service shall be notified immediately by the Service-approved biologist or on-site biological monitor.
5. During project activities, all trash that may attract predators will be properly contained, removed from the work site, and disposed of regularly. Following construction, all trash and construction debris will be removed from work areas.

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6. All fueling and maintenance of vehicles and other equipment and staging areas will occur at least 65 feet from any riparian habitat or water body. The Corps and the CDFG will ensure contamination of habitat does not occur during such operations. Prior to the onset of work, the CDFG will ensure that the contractor has prepared a plan to allow a prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
7. A Service-approved biologist will ensure that the spread or introduction of invasive exotic plant species is avoided to the maximum extent possible. Areas disturbed by project activities will be restored and planted with native plants.
8. The number of access routes, number and size of staging areas, and the total area of the activity will be limited to the minimum necessary to achieve the project goal. Routes and boundaries will be clearly demarcated.
9. Ground-disturbing activities in potential red-legged frog habitat will be restricted to the period between July 1 and October 15.
10. To control erosion during and after project implementation, the CDFG will implement best management practices, as identified by the appropriate Regional Water Quality Control Board.
11. If a work site is to be temporarily dewatered by pumping, intakes will be completely screened with wire mesh not larger than 0.2 inch to prevent red-legged frogs from entering the pump system. Water will be released or pumped downstream at an appropriate rate to maintain downstream flows during construction and reduce the creation of ponded water. Upon completion of construction activities, any barriers to flow will be removed in a manner that would allow flow to resume with the least disturbance to the substrate.
12. A Service-approved biologist will permanently remove, from within the project area, any individuals of exotic species, such as bullfrogs (*Rana catesbiana*), centrarchid fishes, and non-native crayfish to the maximum extent possible. The biologist will have the responsibility to ensure that their activities are in compliance with the Fish and Game Code.

Table 1 shows the maximum number of red-legged frog adults, juveniles, tadpoles, and eggs that the Corps and the CDFG anticipate may be injured or killed as a result of project activities conducted under the proposed authorization. Because ground-disturbing project activities in potential red-legged frog habitat will be restricted to the period between July 1 and October 15, red-legged frog egg masses should not be encountered. If any of the projected injury or mortality limits are reached, project activities will cease and the Corps will reinitiate formal consultation with the Service.

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**Table 1. Maximum number of red-legged frogs that may be injured or killed during Program activities, as proposed by the Corps and the CDFG.**

<i>Unit of Measure</i>	<i>Adults or Juveniles</i>	<i>Tadpoles</i>	<i>Egg Masses</i>
Per Project Site	1	10% of those encountered	0
Per Dewatered Area per Project Site	N/A	10% of those encountered	0
Per Watershed	5	10% of those encountered	0
Per Year	25	10% of those encountered	0

The Corps and the CDFG propose to implement the following additional measures to minimize adverse effects to the freshwater shrimp and its habitat:

1. Where appropriate, a Service-approved CDFG biologist will survey each site for shrimp before allowing work to proceed and prior to issuance of a Streambed Alteration Agreement. All overhanging vegetation, undercut banks, and tree roots will be surveyed with a butterfly net or fish net. In site locations where shrimp are present, CDFG will require the contractor to implement the mitigation measures listed below:
  - a. Equipment work will be performed only in riffle, shallow run, or dry habitats, avoiding low velocity pool and run habitats occupied by shrimp, unless shrimp are relocated according to the protocol described below. "Shallow" run habitat is defined as a run with a maximum water depth, at any point, less than 12 inches, and without undercut banks or vegetation overhanging into the water.
  - b. Hand placement of logs or rocks will be permitted in pool or run habitat in stream reaches where shrimp are known to be present only if the placement will not adversely affect shrimp and their habitat.
  - c. Care shall be taken during placement or movement of materials in the stream to prevent any damage to undercut stream banks and to minimize damage to any streamside vegetation. Streamside vegetation overhanging into pools or runs shall not be modified.
  - d. No log or rock weirs (including vortex rock weirs) shall be constructed that would span the full width of the low flow stream channel. Vegetation shall be incorporated with any structures involving rocks or logs to enhance migration potential for shrimp.
  - e. CDFG must be notified at least one week in advance of the date on which work will start in the stream, so that a qualified CDFG biologist can monitor activities

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- at the work site. All work in the stream shall be stopped immediately if it is determined by CDFG that the work has the potential to adversely impact on the shrimp or its habitat. Work shall not recommence until CDFG is satisfied that there will be no impact on the shrimp.
- f. At least 15 days prior to the onset of activities, the CDFG will submit the name(s) and credentials of biologists who will conduct activities specified in the following measures. The contractor will implement any additional conservation requested by DFG and/or the Service.
2. If, in the opinion of the Service-approved biologist, adverse affects to shrimp would be further minimized by moving shrimp away from the project site, the following procedure shall be used:
- a. A second survey will be conducted within 24 hours of any construction activity and relocated. Shrimp will be moved while in the net, or placed in buckets containing stream water and then moved directly to the nearest suitable habitat. Stress and temperature monitoring of shrimp shall be performed by the Service-approved biologist. Numbers of shrimp and any mortalities or injuries must be identified and recorded. Shrimp habitat is defined as reaches in low elevation (less than 116 m) and low gradient (less than 1 percent) streams where banks are structurally diverse with undercut banks, exposed fine root systems, overhanging woody debris or overhanging vegetation.
- b. When no other habitat exists on a landowner's property, the shrimp shall be held in suitable containers with site water and released at the end of the day. Containers shall be placed in the shade.
- c. Only Service-approved biologists shall participate in the capture, handling, and monitoring of shrimp. CDFG will report annually on the number of capture, release and injuries/mortality and agrees to modify capture/release strategy with Service staff as needed to prevent adverse effects.
- d. If moving the shrimp out of the work area cannot be accomplished, and other avoidance measures have been deemed inappropriate, the CDFG will drop activities at the work site from the project.
3. Before any construction activities begin at a work site that may contain shrimp, the Service-approved CDFG biologist shall conduct a training session for all construction personnel. At a minimum the training shall include a description of the shrimp and its habitat, the importance of the shrimp and its habitat, the general measures that are being implemented to conserve the shrimp as they relate to the work site, and the work site boundaries where construction may occur.

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4. At any work site that may contain shrimp, all fueling and maintenance of vehicles, other equipment, and staging areas shall occur at least 65 feet from any riparian habitat or water body. The contractor shall ensure contamination of habitat does not occur during such operations. Prior to the onset of work, CDFG shall ensure that the contractor has prepared a plan to allow a prompt and effective response to any accidental spills. All workers shall be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
5. A Service-approved CDFG biologist shall be present at the work site until such time as all removal of shrimp, instruction of workers, and habitat disturbance associated with the restoration project have been completed. The Service-approved biologist shall have the authority to halt any action that might result in the loss of any shrimp or its habitat. If work is stopped, the Service-approved biologist shall immediately notify CDFG and the Service.
6. Ground disturbing activities in potential shrimp habitat shall be restricted to the period between July 1 and November 1.
7. If a work site is temporarily dewatered by pumping, intakes shall be completely screened with wire mesh not larger than 0.2 inch to prevent shrimp from entering the pump system. Water shall be released or pumped downstream, at an appropriate rate, to maintain downstream flows during construction. Upon completion of construction activities, any barriers to flow shall be removed in a manner that would allow flow with the least disturbance to the substrate.
8. A Service-approved biologist shall permanently remove from within the project work site, any individuals of exotic species, such as bullfrogs, centrarchid fishes, and non-native crayfish, to the maximum extent possible. The contractor shall have the responsibility that such removals are done in compliance with the California Department of Fish and Game Code.

The DFG Watershed Program's shrimp and salmonid surveys conducted in the Russian River basin did not incur or document injury or mortality to shrimp. Shrimp were successfully captured, rescued, and relocated incidental to coho rescue operations in 2001, which constitutes take in the form of harassment. While the identification of habitat, net capture and release that will be conducted under this Program will result in the low likelihood of injury or mortality to shrimp, it is unreasonable to assume that injury or mortality will never occur.

Table 2 shows the maximum number of shrimp that the Corps and the CDFG anticipate may be injured or killed as a result of project activities conducted under the proposed authorization.

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**Table 2. Maximum number of shrimp that may be injured or killed during Program activities, as proposed by the Corps and the CDFG.**

<i>Unit of Measure</i>	<i>Adults or Juveniles</i>
Per Project Site	2% of those encountered
Per Dewatered Area per Project Site	2% of those encountered
Per Watershed	2% of those encountered
Per Year	2% of those encountered

If any of the projected injury or mortality limits are reached, project activities will cease and the Corps will reinitiate formal consultation with the Service. If projects that qualify for authorization under the proposed Regional General Permit have already undergone individual consultation pursuant to section 7(a)(2) of the Act, the requirements of individual project consultation documents will supersede those outlined in this biological opinion. If a proposed project involves additional species or effects not considered in this consultation, the Corps will reinitiate this consultation or consult on the project individually.

#### *Action Area*

The action area for this project consists of all anadromous fish-bearing streams in Alameda, Contra Costa, Lake, Marin, Lake, Napa, San Francisco, San Mateo, Santa Clara, Solano, and Sonoma counties.

#### **Status of the Species and Environmental Baseline**

##### *California freshwater shrimp*

The California freshwater shrimp was listed as endangered on October 31, 1988 (53 FR 43884). A detailed account of the shrimp's taxonomy, biology, and ecology is presented in the *Recovery Plan for the California Freshwater Shrimp* and is on file with the Service (Service 1998).

The shrimp is a decapod crustacean of the family Atyidae. According to Eng (1981), adults are generally less than 50 millimeters (mm) (2 inches [in.]) in postorbital length (from eye orbit to tip of tail). Based on shrimp collected in October, Eng (1981) described females ranging between 32-45 mm (1.26-1.77 in.) in length and males from 29-39 mm (1.14-1.52 in.) in length. Shrimp coloration varies extensively. Undisturbed shrimp are virtually invisible and move slowly on submerged leaf and twig substrates and among fine, exposed, live tree roots along undercut stream banks.

Shrimp are generally found in stream reaches where banks are structurally diverse with undercut banks, exposed fine root systems, overhanging woody debris, or overhanging vegetation (Eng 1981, Serpa 1986 and 1991). Excellent habitat conditions for shrimp involve streams 30 to 90 cm (14 to 41 in.) in depth with live roots along undercut banks (greater than 15 cm/6.8 in.) with

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overhanging stream vegetation and vines (Serpa 1991). Such microhabitats may provide protection from high velocities and sediment loads associated with high stream flows.

Reproductive ecology of the shrimp has not been described formally. Shrimp reach sexual maturity at the end of the second summer, and reproduction appears to occur once a year. Based upon the reproductive physiology and behavior of other marine and freshwater shrimp, the male probably transfers and fixes a sperm sac to the female shrimp after her last molt, before autumn. The shrimp does not have life history characteristics that favor quick recovery following disturbances, having low fecundity and a long maturation period.

Following a feeding group classification system by Merritt and Cummins (1978), atyid shrimp can be described as collectors feeding upon fine particulate organic matter (Anderson and Cummins 1979, Goldman and Horne 1983). Shrimp observed on pool bottoms, submerged twigs and vegetation appeared to feed on fine particulate matter (Eng 1981).

The shrimp has evolved to survive a range of stream and water temperature conditions characteristic of small, perennial coastal streams. However, no data are available for defining the optimum temperature and stream flow regime for the shrimp or the limits it can tolerate. The shrimp appears to be able to tolerate warm water temperatures (greater than 23° Celsius, 73° Fahrenheit) and low flow conditions that are detrimental or fatal to native salmonids.

Habitat preferences apparently change during late spring and summer months. Eng (1981) rarely found shrimp beneath undercut banks in summer; submerged leafy branches were the preferred summer habitat. The highest concentrations of shrimp were in reaches with adjacent vegetation comprised of stinging nettles (*Urtica* sp.), blackberry (*Rubus* sp.) grasses, and mint (*Mentha* sp.). None were caught from cattails (*Typha* sp.), cottonwood (*Populus fremontii*), or California laurel (*Umbellularia californica*). Serpa (pers. comm. 1994 cited in Service 1998) noted that populations of shrimp were proportionally correlated with the quality of summer habitat provided by trailing terrestrial vegetation. However, during summer low flows, shrimp have been found in apparently poor habitat such as isolated pools with minimal cover. In such streams, opaque waters may allow shrimp to escape predation and persist in open pools (Serpa 1991).

Shrimp has relatively low fecundity, is believed to reproduce only once a year, and requires over one year to reach sexual maturity. Wallace (1990) summarized studies that have shown mollusks to be one of the last taxa to recolonized disturbed stream reaches, whereas insect colonization occurs faster. Shrimp may be even less adapted to disturbances than mollusks. The shrimp has no known resistant or dormant life stage that would allow it to survive a toxic event such as a chemical spill.

Shrimp are assumed to have been common historically in perennial freshwater streams within Marin, Sonoma, and Napa counties. Today, the shrimp is found in 19 streams within these counties. Shrimp distribution can be separated into four general geographic regions:  
(1) tributaries to the lower Russian River, (2) coastal streams flowing to the Pacific Ocean,



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(3) streams draining to Tomales Bay, and (4) streams flowing southward to San Pablo Bay. Many of these shrimp populations are isolated from each other. Where shrimp are present in two connecting watercourses, smaller tributaries generally support greater numbers of shrimp than their larger receiving streams. Shrimp have been found only in low elevation (less than 116 m, 380 ft.) and low gradient (generally less than 1 percent) streams. With the exception of Yulupa Creek, shrimp have not been found in stream reaches with boulder and bedrock bottoms. High velocities and turbulent flows in such reaches may hinder upstream movement of shrimp.

Distribution of shrimp populations within streams is not expected to be static, because of habitat changes from natural or manmade forces. Distribution may expand or contract depending upon conditions within streams. A recovery objective for the shrimp is the gradual removal of unnatural barriers to shrimp dispersal and restoration of natural habitat conditions (Service 1998). These measures are expected to expand shrimp distribution beyond its existing range. Existing shrimp distribution in streams is not continuous, and the species often occupies only short reaches of the stream (Service 1998). However, entire streams are considered shrimp habitat, because the shrimp disperses between areas of good habitat. Shrimp have been found only in low elevation (less than 116 m, 380 ft.) and low gradient (generally less than 1 percent) streams. With the exception of Yulupa Creek, shrimp have not been found in stream reaches with boulder and bedrock bottoms. High velocities and turbulent flows in such reaches may hinder upstream movement of shrimp.

Introduced fish may affect shrimp distribution significantly through predation. Carp (*Cyprinus carpio*) occur in Stemple Creek (Serpa 1986), which dislodge and consume invertebrates from plants and silty bottoms through their rooting activities (Moyle 1976). Introduced sunfish (*Lepomis cyanellus*) and mosquitofish (*Gambusia affinis*) are likely shrimp predators (Service 1998). Williams (1977) found no coexistence between mosquitofish and atyids in Hawaiian streams. Because of the relatively recent introduction of these fish, the shrimp probably has not developed defense mechanisms to reduce their risk of predation. Like the shrimp, many introduced fish can persist under relatively poor water quality conditions in the absence of natural predators such as juvenile steelhead (*Oncorhynchus mykiss*).

Although largely absent from coastal streams today, large, complex organic debris dams may have been historically prevalent in streams supporting shrimp populations. These structures may have been important feeding and refugial sites for the shrimp. Such structures are known to collect detrital material and leaf litter (Triska *et al.* 1982). Debris dams may offer refugia during high flow events and reduce displacement of invertebrates (Covich *et al.* 1991). These dams are transitory in nature and break apart during high flow events, allowing shrimp to disperse periodically and maintain genetic connections among populations. In 529 surveys between 1994 and 2003, CDFG encountered shrimp in 42 separate surveys (CDFG Hopland Office files). The majority of shrimp were encountered on Green Valley Creek (130, 457 and 330) and Franz Creek (approximately 100) in the Russian River basin during a few surveys. The majority of shrimp were encountered during electro-fishing surveys for salmonids and were incidental to capture. Fewer individuals were encountered during preconstruction survey for shrimp at Restoration Program sites (CDFG *in litt.* 2004). In total CDFG has observed or captured 1,423

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shrimp over the period of record in the Russian River basin. Similar numbers are not available for shrimp in coastal streams or tributaries to San Pablo Bay.

Objectives in the shrimp's recovery plan includes protection of existing populations, removal of threats to these populations, and enhancement of habitat for native aquatic species within the shrimp's historic range. Projects performed under the Restoration Program will aid in the implementation of these recovery objectives.

*California red-legged frog*

The California red-legged frog was federally listed as threatened on May 23, 1996 (61 FR 25813). A recovery plan has been published (Service 2002). Critical habitat for the California red-legged frog was designated on March 13, 2001 (66 *Federal Register* 14625). On November 6, 2002, the United States District Court for the District of Columbia set aside the designation and ordered the Service to publish a new final rule with respect to the designation of critical habitat for the California red-legged frog (*Home Builders Association of Northern California et al. versus Gale A Norton, Secretary of the Department of Interior et al.* Civil Action No. 01-1291 (RJL) U.S. District Court, District of Columbia). The Service published a new proposed rule to designate critical habitat for the California red-legged frog on April 13, 2004 (69 FR 19620).

This species is the largest native frog in the western United States (Wright and Wright 1949), ranging from 4 to 13 centimeters (1.5 to 5.1 inches) in length (Stebbins 1985). The abdomen and hind legs of adults are largely red; the back is characterized by small black flecks and larger irregular dark blotches with indistinct outlines on a brown, gray, olive, or reddish background color. Dorsal spots usually have light centers (Stebbins 1985), and dorsolateral folds are prominent on the back. Larvae (tadpoles) range from 14 to 80 millimeters (0.6 to 3.1 inches) in length, and the background color of the body is dark brown and yellow with darker spots (Storer 1925).

Red-legged frogs have paired vocal sacs and vocalize in air (Hayes and Krempels 1986). Female frogs deposit egg masses on emergent vegetation so that the egg mass floats on the surface of the water (Hayes and Miyamoto 1984). Red-legged frogs breed from November through March with earlier breeding records occurring in southern localities (Storer 1925). Individuals occurring in coastal drainages are active year-round (Jennings *et al.* 1992), whereas those found in interior sites are normally less active during the cold season.

Adult red-legged frogs prefer dense, shrubby or emergent riparian vegetation closely associated with deep (>0.7 meters [2.3 feet]), still, or slow-moving water (Hayes and Jennings 1988). However, frogs also have been found in ephemeral creeks and drainages and in ponds that may or may not have riparian vegetation. The largest densities of red-legged frogs currently are associated with deep pools with dense stands of overhanging willows (*Salix* spp.) and an intermixed fringe of cattails (*Typha latifolia*) (Jennings 1988). Red-legged frogs disperse upstream and downstream of their breeding habitat to forage and seek sheltering habitat. Sheltering habitat for red-legged frogs is potentially all aquatic, riparian, and upland areas within

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the range of the species and includes any landscape features that provide cover, such as existing animal burrows, boulders or rocks, organic debris such as downed trees or logs, and industrial debris. Agricultural features such as drains, watering troughs, spring boxes, abandoned sheds, or hay ricks may also be used. Incised stream channels with portions narrower than 46 centimeters (18 inches) and depths greater than 46 centimeters (18 inches) may also provide important summer sheltering habitat. Accessibility to sheltering habitat is essential for the survival of red-legged frogs within a watershed, and can be a factor limiting frog population numbers and survival.

During winter rain events, juvenile and adult red-legged frogs are known to disperse up to 1-2 kilometers (0.54-1.08 miles) (Rathbun and Holland, unpublished data, cited in Rathbun *et al.* 1991). Semlitsch and Bodie (2003) using tracking data for a diverse array of adult frogs and toads found that protection of 205 - 368 meter wide upland buffers around aquatic breeding habitats will encompass the core upland habitat used by adult anuran amphibians. In northern Santa Cruz County red-legged frogs migrating between breeding ponds and moist summer habitats traveled distances from 0.4 kilometer (0.25 mile) to more than 3 kilometers (2 miles) without apparent regard to topography, vegetation type, or riparian corridors (Bulger *et al.* 2003).

Egg masses contain about 2,000 to 5,000 moderate sized (2.0 to 2.8 millimeters [0.08 to 0.11 inches] in diameter), dark reddish brown eggs and are typically attached to vertical emergent vegetation, such as bulrushes (*Scirpus* spp.) or cattails (Jennings *et al.* 1992). Red-legged frogs are often prolific breeders, laying their eggs during or shortly after large rainfall events in late winter and early spring (Hayes and Miyamoto 1984). Eggs hatch in 6 to 14 days (Jennings 1988). In coastal lagoons, the most significant mortality factor in the pre-hatching stage is water salinity (Jennings *et al.* 1992); exposure to salinity levels greater than 4.5 parts per thousand results in 100 percent mortality (Jennings and Hayes 1990). Increased siltation during the breeding season can cause asphyxiation of eggs and small larvae. Larvae undergo metamorphosis 3.5 to 7 months after hatching (Storer 1925, Wright and Wright 1949, Jennings and Hayes 1990). Of the various life stages, larvae probably experience the highest mortality rates, with less than 1 percent of eggs laid reaching metamorphosis (Jennings *et al.* 1992). Sexual maturity normally is reached at 3 to 4 years of age (Storer 1925, Jennings and Hayes 1985). Red-legged frogs may live 8 to 10 years (Jennings *et al.* 1992). Populations of red-legged frogs fluctuate from year to year. When conditions are favorable, red-legged frogs can produce large numbers of dispersing young and a concomitant increase in densities and the number of occupied sites. In contrast, red-legged frogs may temporarily disappear from an area when conditions are stressful (*e.g.*, drought).

The diet of red-legged frogs is highly variable. Hayes and Tennant (1985) found invertebrates to be the most common food items. Vertebrates, such as Pacific tree frogs (*Hyla regilla*) and California mice (*Peromyscus californicus*), represented over half the prey mass eaten by larger frogs (Hayes and Tennant 1985). Hayes and Tennant (1985) found juvenile frogs to be active diurnally and nocturnally, whereas adult frogs were largely nocturnal. Feeding activity probably occurs along the shoreline and on the surface of the water (Hayes and Tennant 1985). Larvae likely eat algae (Jennings *et al.* 1992).

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Several researchers in central California have noted the decline and eventual disappearance of red-legged frog populations following the establishment of bullfrogs (*R. catesbeiana*) at a site (L. Hunt, in litt. 1993, S. Barry, in litt. 1992, S. Sweet, in litt. 1993). This has been attributed to both predation and competition. Twedt (1993) documented bullfrog predation of juvenile northern red-legged frogs, and suggested that bullfrogs could prey on subadult northern red-legged frogs as well. In addition to predation, bullfrogs may have a competitive advantage over red-legged frogs; bullfrogs are larger, possess more generalized food habits (Bury and Whelan 1984), have an extended breeding season (Storer 1933) during which an individual female can produce as many as 20,000 eggs (Emlen 1977), and larvae are unpalatable to predatory fish (Kruse and Francis 1977). In addition to competition, bullfrogs also interfere with Red-legged frog reproduction. Both California and northern red-legged frogs have been observed in amplexus with (mounted on) both male and female bullfrogs (Jennings and Hayes 1990, Twedt 1993, M. Jennings, in litt. 1993, R. Stebbins in litt. 1993). Thus bullfrogs are able to prey upon and out-compete red-legged frogs, especially in sub-optimal habitat.

The urbanization of land within and adjacent to red-legged frog habitat has also impacted Red-legged frogs. In a survey by H.T. Harvey and Associates (1997), it was determined that red-legged frogs were historically found throughout Santa Clara County, however they have been essentially extirpated from the urbanized lowland areas of the county. These declines are attributed to channelization of riparian areas, enclosure of the channels by urban development that blocks red-legged frog dispersal, and the introduction of predatory fishes and bullfrogs. This report further identifies the conversion and isolation of perennial pool habitats resulting from urbanization as an ongoing impact to red-legged frogs.

Juvenile and adult frogs, including red-legged frogs, have been found in human-created habitats such as golf course ponds, but these habitats may not be suitable for the long-term survival or successful reproduction of local frog populations, especially near urban areas where predators such as bullfrogs and raccoons are able to build up large populations (H.T. Harvey and Associates 1997). In the Central Coast area of California, which contains the largest known red-legged frog populations, red-legged frogs are known from three golf courses. Two of these golf courses are also inhabited by bullfrogs, and the two species are found in separate ponds. Within Alameda and Contra Costa counties we are not aware of red-legged frogs inhabiting ponds within golf courses. In Solano County, red-legged frogs were found in large numbers immediately after the construction of water features within one golf course, however, this population has been nearly eliminated by a substantial bullfrog population, and perhaps by water chemistry manipulation by the golf course (Service files).

California red-legged frogs have been extirpated or nearly extirpated from over 70 percent of their former range. Historically, this species was found throughout the Central Valley and Sierra Nevada foothills. As of 1996, California red-legged frogs have been documented in approximately 240 streams or drainages from 23 counties, primarily in central coastal California. Monterey, San Luis Obispo, and Santa Barbara counties support the largest extent of currently occupied habitat. The most secure aggregations of red-legged frogs are found in aquatic sites that support substantial riparian and aquatic vegetation and lack non-native predators. Several

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researchers in central California have noted the decline and eventual local disappearance of California and northern red-legged frogs in systems supporting bullfrogs (Jennings and Hayes 1990, Twedt 1993), red swamp crayfish (*Procambarus clarkii*), signal crayfish (*Pacifastacus leniusculus*), and several species of warm water fish including sunfish (*Lepomis* spp.), goldfish (*Carassius auratus*), common carp (*Cyprinus carpio*), and mosquitofish (*Gambusia* sp.) (L. Hunt, in litt. 1993, S. Barry, in litt. 1992, S. Sweet, in litt. 1993). Habitat loss, non-native species introduction, and urban encroachment are the primary factors that have adversely affected the red-legged frog throughout its range.

### Effects of the Proposed Action

#### General Effects

Direct effects to adult and juvenile shrimp and to red-legged frog adults, sub-adults, tadpoles, and eggs in the footprint of projects utilizing the proposed authorization would include injury or mortality from being crushed by earth-moving equipment, construction debris, and worker foot traffic. These effects would be reduced by minimizing and clearly demarcating the boundaries of the project areas.

Shrimp and red-legged frog tadpoles may be entrained by pump or water diversion intakes. Screening pump intakes with wire with not greater than 0.2-inch diameter mesh may reduce the potential that shrimp and tadpoles would be caught in the inflow.

Shrimp and red-legged frogs may be killed by predators. If water that is impounded during or after work activities creates favorable habitat for non-native predators, such as bullfrogs, crayfish, and centrarchid fishes, shrimp and red-legged frogs may incur abnormally high rates of predation. Additionally, any time red-legged frogs are concentrated in a small area at unusually high densities, native predators such as great blue herons (*Ardea herodias*), great egrets (*A. alba*), opossums (*Didelphis virginiana*), and raccoons may feed on them opportunistically. This impact can be minimized by avoiding creation of ponded water as a result of project actions such as dewatering the work area.

Trash left during or after project activities could attract predators to work sites, which could, in turn, prey on shrimp and red-legged frogs. For example, raccoons are attracted to trash and also prey opportunistically on both species. This potential impact can be reduced or avoided by careful control of waste products at all work sites.

Accidental spills of hazardous materials or careless fueling or oiling of vehicles or equipment could degrade water quality to a degree where shrimp or red-legged frogs are injured or killed. The potential for this effect to occur can be reduced by thoroughly informing workers of the importance of preventing hazardous materials from entering the environment, locating staging and fueling areas a minimum of 65 feet from riparian areas or other water bodies, and by having an effective spill response plan in place.

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Uninformed workers could disturb, injure, or kill shrimp or red-legged frogs. The potential for this effect to occur may be greatly reduced by informing workers of the presence and protected status of this species and the measures that are being implemented to protect it during project activities.

The restoration projects that would utilize the proposed authorization are intended to provide additional habitat for, and increased populations of, steelhead and salmon in the respective project areas. These fish prey on the shrimp and the red-legged frog. The effects of potentially increasing predator populations on the shrimp and red-legged frog cannot be accurately predicted at this time. Shrimp, salmon and steelhead presumably occurred sympatrically in coastal watersheds prior to the onset of human disturbance. Although we anticipate some predation of shrimp and red-legged frogs by salmonid fishes, this level of predation is not expected to appreciably alter the population structure within the project areas.

The Corps' proposed authorization would affect a small number of shrimp and red-legged frogs, if any occur in the areas that would be temporarily disturbed by project activities. Because of the small size of the work areas, the temporal nature of the projects, the implementation of the projects in the dry season, and the proposed protective measures, we anticipate that few, if any, shrimp and red-legged frogs are likely to be killed or injured during project activities. The areas disturbed by Program projects constitute a small portion of the available shrimp and red-legged frog habitat throughout the Corps' San Francisco District's jurisdiction; additionally, disturbed areas will be restored and planted with native plants. Restoration and enhancement of riparian vegetation in project sites is likely to increase the number and quality of cover sites and the diversity and abundance of prey species for red-legged frogs. The proposed authorization is generally likely to improve the quality of habitat for the red-legged frog in areas affected by projects implemented under the Program.

#### *Effects to California freshwater shrimp*

The shrimp adjacent to project sites may be incidentally taken in the form of harm, harassment injury, or mortality as a result of temporary disturbances from project activities. With implementation of the conservation measures, only low levels of injury or mortality of shrimp are anticipated. Injury or mortality to shrimp was not incurred or documented and any of the salmonid or shrimp surveys conducted in the Russian River basin. Shrimp were successfully captured, rescued, and relocated incidental to coho rescue operations in 2001, which constitutes take in the form of harassment. While the identification of habitat, net capture and release that will be conducted under this Program will result in the low likelihood of injury or mortality to shrimp, it is unreasonable to assume that injury or mortality will never occur. The potential for take in the form of harassment of individuals depending upon restoration technique in a project area is higher. In addition, injury to or mortality of shrimp during a dewatering rescue and relocation is more likely due to their fragile size and requirement for an aquatic environment.

For Program projects, maximum projected take in the form of harassment includes all individuals in the project area. Maximum projected take in the form of direct mortality or injury should not

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exceed 2% of all individuals encountered (while no shrimp mortalities or injuries have been observed so far in existing surveys, CDFG has experienced and documented a 1% mortality with salmonids – NOAA allows 2%). Based on CDFG's estimation of the shrimp present in past surveys, for each dewatered area we expect; 2 % of individuals in a dewatered area. The 2% figure is estimated based on the scientific literature and CDFG data for other aquatic species; while numbers of shrimp encountered are based on CDFG data.

Work in live streams or in floodplains could cause unusually high levels of siltation downstream. Although shrimp are usually able to survive in poor water quality conditions, this siltation could alter the quality of the habitat to the extent that use by individuals of the species is precluded. Siltation also could fill slow-moving pools, reducing the extent or quality of shrimp habitat near the project area. Implementing best management practices for erosion control and reducing the area to be disturbed to the minimum necessary should decrease the amount of sediment that is washed downstream as a result of project activities.

The Corps' proposed authorization of the Program may result in the loss of shrimp habitat. Installation of check dams, rock weirs, log weirs and wing deflectors may prevent shrimp from dispersing along streambanks. The potential for this effect may be reduced by ensuring that project proponents are thoroughly briefed by CDFG on the locations of shrimp streams, by designing projects to match the historical stream ecosystem as closely as possible, and by ensuring that check dams and weirs do not span any creek known to support shrimp.

Removal of nonnative invasive vegetation such as Himalayan blackberry (*Rubus discolor*) may reduce the extent and quality of shrimp habitat. The restoration projects will provide more stable stream banks, better water quality through decreased erosion and sediment loading, and shelter along stream banks for red-legged frogs. Additionally, many of the projects will improve red-legged frog habitat by creating additional pools and providing a more natural water flow regime by eliminating or altering fish passage barriers. The restoration projects will contribute to the local recovery of the red-legged frog by removing non-native predators such as bullfrogs, which out-compete and ultimately displace red-legged frogs from suitable habitat, and by improving the riparian buffer which will reduce the movement of pesticides into the aquatic environment.

Many activities in this Program will benefit the shrimp. Riparian plantings and cattle exclusion fences will improve habitat quality in shrimp streams and their tributaries. Increased riparian cover will increase habitat complexity and root density on streambanks. Riparian vegetation will allow shrimp to disperse more easily and will stabilize water temperatures in the creeks. Exclusionary fencing will reduce cattle impacts to the creek such as overgrazing, streambank trampling, and soil compaction. Objectives in the shrimp's recovery plan includes protection of existing populations, removal of threats to these populations, and enhancement of habitat for native aquatic species within the shrimp's historic range. Projects performed under the Restoration Program will aid in the implementation of these recovery objectives.

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*Effects to California red-legged frog*

Work activities, including noise and vibration, may cause red-legged frogs to leave the work area. This disturbance may increase the potential for predation and desiccation. Minimizing the area disturbed by project activities may reduce the potential for dispersal resulting from the action. Red-legged frogs are more likely to disperse overland in mesic conditions. Because the CDFG would primarily be executing the proposed projects during the dry season, these impacts are less likely. As long as no substantial rainfall (substantial rainfall = greater than 0.5 inch of rain in a 24-hour period) occurs, red-legged frogs are unlikely to be at risk.

Work in live streams or in floodplains could cause unusually high levels of siltation downstream. This siltation could smother eggs of the red-legged frog and alter the quality of the habitat to the extent that use by individuals of the species is precluded. Implementing best management practices for erosion control and reducing the area to be disturbed to the minimum necessary should decrease the amount of sediment that is washed downstream as a result of project activities.

The Corps' proposed authorization of the Program is not expected to result in the temporary loss of red-legged frog habitat. The restoration projects will provide more stable stream banks, better water quality through decreased erosion and sediment loading, and shelter along stream banks for red-legged frogs. Additionally, many of the projects will improve red-legged frog habitat by creating additional pools and providing a more natural water flow regime by eliminating or altering fish passage barriers. The restoration projects will contribute to the local recovery of the red-legged frog by removing non-native predators such as bullfrogs, which out-compete and ultimately displace red-legged frogs from suitable habitat, and by improving the riparian buffer which will reduce the movement of pesticides into the aquatic environment. These actions will help to implement watershed protection and restoration actions outlined in the red-legged frog's recovery plan (Service 2002)

**Cumulative Effects**

Cumulative effects are those impacts of future State, Tribal, local, or private actions affecting listed species that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section, because they require separate consideration pursuant to section 7 of the Act.

*California freshwater shrimp*

Cumulative effects include several human activities which pollute and degrade shrimp habitat. Many factors operate synergistically with one another and with natural disturbances such as floods and droughts. Pollution from point and non-point discharges can degrade water quality to the extent that shrimp cannot survive. Increased urbanization results in greater levels of stormwater runoff to streams, treated sewage effluent, and contaminated road runoff. Flood control activities such as channelization, sediment removal, levee maintenance, and vegetation



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removal eliminate shrimp habitat and preclude recolonization of historic habitat areas. Instream gravel mining causes direct loss of shrimp habitat through vegetation removal, stream substrate removal, and water quality degradation through increased siltation.

Overgrazing results in trampled riparian vegetation, increased water temperatures, and streambank and upland erosion, and shrimp habitat. Livestock operations also degrade water quality with nutrients and pesticides. Agricultural development, impoundments, and irrigation can reduce stream flows, causing streams to dry up during the summer and fall so shrimp cannot survive. Row crop cultivation often results in more severe adverse effects. Napa and Sonoma counties have allowed the conversion of thousands of acres of land from grazing to grape production. Vineyard owners often raze the riparian corridors on their property in an attempt to prevent the spread of Pierce's disease, a bacterial infection that attacks grapes and other plants. Many of the plants considered undesirable to vineyard owners (wild grapes, blackberry) provide habitat for freshwater shrimp, and the elimination of these plants can be highly detrimental to the shrimp. Introduced predators can eliminate shrimp populations or preclude colonization. More than one factor threatens shrimp populations in most streams. Many threats identified prior to the shrimp's listing have intensified. A species closely related to the freshwater shrimp, *Syncaris pasadenae*, became extinct in the 1930s, in large part due to construction and stabilization projects which disrupted their environment (Hedgpeth 1975).

Properly constructed stream restoration projects may benefit shrimp and other native species in the long term by increasing habitat complexity, stabilizing channels and streambanks, increasing spawning gravels, decreasing sedimentation, and increasing shade and cover. However, restoration activities may cause temporary increases in turbidity, alter channel dynamics and stability, and harass and kill shrimp.

#### *California red-legged frog*

Non-Federal activities expected to occur within the project area considered under this biological opinion include water treatment, potential release of toxic substances, water diversions, residential and commercial development activity, agricultural practices, intentional or unintentional release of native and non-native predators into water bodies, and grazing on private and municipal lands. The Service anticipates that the effects of these non-Federal activities would be addressed through section 10(a)(1)(B) permits. Habitat conservation plans that are required to obtain such permits would include measures that would minimize and mitigate the effects to the red-legged frog resulting from the non-Federal activities.

#### **Conclusion**

After reviewing the current status of the species, the environmental baseline for the action area, the effects of the proposed action, and the cumulative effects, it is the Service's biological opinion that the Corps' issuance of the CDFG Fisheries Restoration Grant Program Regional General Permit, as proposed, is not likely to jeopardize the continued existence of the shrimp or

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the red-legged frog. Critical habitat has not been designated for the shrimp; therefore, none will be adversely modified or destroyed.

We have reached this conclusion based on the following reasons:

1. The Corps and the CDFG have proposed measures to minimize the potential adverse effects of project activities on the shrimp and red-legged frog;
2. The persistence of the shrimp and red-legged frog in the affected area would not be diminished by the activities covered under this programmatic consultation;
3. Few, if any, shrimp or red-legged frogs are likely to be killed or injured during project activities; and
4. The overall quality of shrimp and red-legged frog breeding, foraging, and dispersal habitat would be improved as a result of improved water quality, reduced sedimentation, and habitat enhancement associated with Program projects. This improvement would offset any injury or mortality that might result from implementation of Program activities.

#### INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibits the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and 7(o)(2) of the Act, taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary. The Corps must make them binding conditions of its authorization issued to the CDFG for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps fails to require the CDFG to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the authorization, the protective coverage of section 7(o)(2) may lapse.

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#### Amount or Extent of Take

Incidental take of shrimp and red-legged frogs will be difficult to detect, because their small body size and cryptic coloration make the finding of a dead or injured specimen unlikely. For actions covered by this consultation, some harassment and mortality could be directly observed from red-legged frogs captured during translocation efforts. However, mortality from other sources would be difficult to observe. The observed take for both species may be lower than the actual take. However, with the implementation of the reasonable and prudent measures, the effects of the unobserved take would not change our analysis of effects of the actions covered by this biological opinion.

If any shrimp or red-legged frogs are found dead or injured, the Corps or the CDFG must contact our office immediately so we can review the project activities to determine if additional protective measures are needed. Project activities may continue during this review period, provided that all protective measures proposed by the Corps and the CDFG and the terms and conditions of this biological opinion have been and continue to be implemented. Shrimp and red-legged frogs may be taken only within the boundaries of individual project sites. This biological opinion does not authorize any form of take that is not incidental to implementation of the Program projects within the boundaries covered under the Corps' jurisdiction.

We anticipate that few shrimp or red-legged frogs will be killed or injured during projects conducted under the proposed authorization. All shrimp and red-legged frog adults, juveniles, and tadpoles that are at risk of injury or death from project activities within the boundaries of work areas may be taken through harassment during translocation activities.

Based on the take limits proposed by Corps and the CDFG in Table 1 of the Description of the Proposed Action portion of this biological opinion, the maximum amount of incidental take in the form of injury or mortality that may occur as a result of Program project activities is as follows:

Unit of Measure	Adults or Juveniles	Tadpoles	Egg Masses
Per Project Site	1	10% of those encountered	0
Per Dewatered Area per Project Site	N/A	10% of those encountered	0
Per Watershed	5	10% of those encountered	0
Per Year	25	10% of those encountered	0

Projected take in the form of harassment includes all individuals in the project area. The Service does not expect take in the form of direct mortality or injury to exceed 2% of all individuals encountered. The 2% figure is estimated based on the scientific literature and CDFG data for

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other aquatic species (CDFG 2004a). The maximum amount of incidental take in the form of injury or mortality that may occur as a result of Program project activities is as follows:

<i>Unit of Measure</i>	<i>Adults or Juveniles</i>
Per Project Site	2% of those encountered
Per Dewatered Area per Project Site	2% of those encountered
Per Watershed	2% of those encountered
Per Year	2% of those encountered

This biological opinion does not exempt any form of take that is not incidental to the execution of Program project activities that are analyzed by this biological opinion. If the amount of anticipated incidental take is exceeded, the exemption from the prohibition against take provided by this biological opinion may lapse. If the amount of incidental take by any geographic or temporal unit of measure described above (*i.e.*, per project site, per dewatered area, per watershed, per year) is reached, project activities will cease and the Corps will reinitiate formal consultation with the Service.

#### **Effect of the Take**

The Service has determined that this level of anticipated take is not likely to jeopardize the continued existence of the shrimp or the red-legged frog. Critical habitat has not been designated for the shrimp; therefore, none will be adversely modified or destroyed. We have reached this conclusion based on the following reasons:

1. The Corps and the CDFG have proposed measures to minimize the potential adverse effects of project activities on the shrimp and red-legged frog;
2. Few, if any, shrimp or red-legged frogs are likely to be killed or injured during project activities; and
3. The overall quality of shrimp and red-legged frog breeding, foraging, and dispersal habitat would be improved as a result of improved water quality, reduced sedimentation, and habitat enhancement associated with Program projects.

#### **Reasonable and Prudent Measures**

The Service believes that the following reasonable and prudent measures are necessary and appropriate to minimize take of red-legged frogs:

1. The CDFG must implement well-defined measures to ensure shrimp are not harmed, killed or injured directly or indirectly by project activities.
2. The CDFG must implement well-defined measures to ensure red-legged frogs are not killed or injured directly or indirectly by project activities.

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The Service's evaluation of the effects of the proposed action includes consideration of the measures to minimize the adverse effects of the proposed action on the red-legged frog that were developed by the CDFG and stated in the Description of the Proposed Action portion of this biological opinion. Any subsequent changes in these measures proposed by the Corps or the CDFG may constitute a modification of the proposed action and may warrant reinitiation of formal consultation, as specified at 50 CFR 402.16. These reasonable and prudent measures is intended to supplement the protective measures that were proposed by the Corps and the CDFG as part of the proposed action.

#### **Terms and Conditions**

To be exempt from the prohibitions of section 9 of the Act, the Corps must ensure that the CDFG complies with the following terms and conditions, which implement the reasonable and prudent measures. These terms and conditions are non-discretionary.

1. The following terms and conditions implement reasonable and prudent measure 1:
  - a. CDFG shall implement the Program as proposed, including all minimization measures outlined to protect the shrimp.
  - b. No check dams shall be constructed in creeks known to support the shrimp.
  - c. Shrimp conservation measures in the 2004 Negative Declaration (DFG 2004) shall be incorporated into updated versions of the Restoration Manual.
  - d. A map showing the range of the shrimp shall be incorporated into updated versions of Appendix F of the Restoration Manual. The map shall be of similar scale to the map found in the shrimp's recovery plan and show all current known occurrences of the shrimp.
  - e. Invasive nonnative vegetation that provides shrimp habitat and is removed as a result of Program activities shall be replaced with native vegetation that provides comparable habitat for the shrimp. Revegetated sites shall be irrigated as necessary until vegetation is established. Revegetated sites shall be monitored until shading and cover achieves 80% of pre-project shading and cover and for a minimum of 5 years.
  - f. No dumping of dead trees, yard waste or brush shall occur in shrimp streams, which may result in oxygen depletion of aquatic systems.
2. The following terms and conditions implement reasonable and prudent measure 2:
  - a. The project will be implemented as described, including all minimization measures outlined to protect the red-legged frog.

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- b. Prior to the onset of any project-related activities, the approved biologists must identify appropriate areas to receive translocated red-legged frog adults and tadpoles from the project areas. These areas must be in proximity to the capture site, contain suitable habitat, not be affected by project activities, and be free of exotic predatory species (*i.e.*, bullfrogs, crayfish) to the best of the approved biologists' knowledge.
- c. In a project involving installation of a fish screen on a water diversion intake, the screen mesh must not be larger than 0.2 inch to prevent red-legged frogs from being entrained in the diversion system.
- d. Biologists who handle red-legged frogs must ensure that their activities do not transmit diseases. To ensure that diseases are not conveyed between work sites by the Service-approved biologist, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force must be followed at all times.
- e. Red-legged frog conservation measures in the Negative Declaration (CDFG 2004) shall be incorporated into updated versions of the Restoration Manual.

#### **Reporting Requirements**

The Corps or the CDFG must submit an annual report of implemented projects to the Service's Sacramento Fish and Wildlife Office, 2800 Cottage Way, Sacramento, California 95825). The report must include (1) a table documenting the number of shrimp or red-legged frogs killed, injured, and handled during each Program project that utilizes the Corps' proposed authorization; (2) a summary of how the terms and conditions of this biological opinion and the protective measures proposed by the Corps and the CDFG worked; and (3) any suggestions of how these measures could be revised to improve conservation of this species while facilitating compliance with the Act. This information will assist the Service in evaluating future actions for the conservation of the California red-legged frog. Reports must be submitted to the Service's Sacramento Fish and Wildlife Office by January 31 of each year the Corps' proposed authorization is valid.

#### ***Disposition of Dead or Injured Specimens***

The Service shall be notified within twenty-four (24) hours of the finding of any injured or dead shrimp or any unanticipated harm to their habitat addressed in this biological opinion. Notification shall include the date, time, and precise location of the specimen/incident, and any other pertinent information. The Service contact person is Catrina Martin, Deputy Assistant Field Supervisor, Endangered Species Division in the Sacramento Fish and Wildlife Office at (916) 414-6600. Any dead or injured specimen shall be deposited with the Service's Division of Law Enforcement, 2800 Cottage Way, Sacramento, California 95825, telephone (916) 414-6660. If any of the projected injury or mortality limits are reached, project activities will cease and the Corps will reinitiate formal consultation with the Service.

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Care must be taken in handling dead specimens to preserve biological material in the best possible state for later analysis. Should any injured California red-legged frogs survive, either the Corps or the CDFG must contact the Service regarding their final disposition. The remains of California red-legged frogs must be placed with the California Academy of Sciences Herpetology Department (Contact: Jens Vindum, Collections Manager, California Academy of Sciences Herpetology Department, Golden Gate Park, San Francisco, California, 94118, (415) 750-7037). The Corps or the CDFG should make arrangements with the California Academy of Sciences regarding proper disposition of potential museum specimens prior to the commencement of project activities.

In the case of take or suspected take of listed species not exempted in this biological opinion, the Sacramento Fish and Wildlife Office must be notified within 24 hours.

### CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities that can be implemented to further the purposes of the Act, such as preservation of endangered species habitat, implementation of recovery actions, or development of information or data bases. The Service recommends the following actions:

1. We recommend that the Service-approved biologists relocate any southwestern pond turtles (*Clemmys marmorata pallida*), California legless lizards (*Anniella pulchra*), western spadefoot toads (*Scaphiopus hammondi*), and any other native reptiles or amphibians found within work areas to suitable habitat outside of the project area, if such actions are in compliance with State laws.
2. We recommend that areas that are revegetated be monitored for a minimum of five years to ensure that revegetation is successful.
3. The Corps and CDFG should implement the recovery actions for shrimp and frog in their programs.

### REINITIATION - CLOSING STATEMENT

This concludes formal consultation on the proposed CDFG Anadromous Fisheries Restoration Grants Program. As provided in 50 CFR 402.16, re-initiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the proposed action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently

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modified in a manner that causes an effect to listed species or critical habitat that was not considered in this opinion; or (4) a new species or critical habitat is designated that may be affected by the proposed action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take shall cease pending re-initiation.

If you have any questions regarding this consultation on the Regional General Permit for California Department of Fish and Game Anadromous Fisheries Restoration Grants Program, please contact Cecilia Brown or Dan Buford at (916) 414-6625.

Sincerely,



*for* Cay C. Goude  
Acting Field Supervisor

cc:

ARD (ES), Portland, OR  
Arcata Fish and Wildlife Office, Arcata, CA (Attn David Solis)  
Ventura Fish and Wildlife Office, Ventura, CA (Attn Roger Root)  
CDFG, Anadromous Fisheries Restoration Program, Sacramento, CA (Attn Helen Birss)  
National Marine Fisheries Service, Santa Rosa, CA (Attn Jeffrey Jahn)  
CDFG, Anadromous Fisheries Restoration Program, Napa, CA (Attn Bob Coey)



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